

7/185

91/11
 TCG CCG GCT CGC GGA CGT AGA TAA TAG CTC ACC GTT GGA CGA CCT CGA CAG GGT CCT TTG
 ser pro ala arg gly arg arg OCH AMS leu thr val gly arg pro arg gln gly pro leu
 91/21
 TGA CTG CCG GGC TTG ACG CCG ACG ACC ACA GAG TCG GGT CAT CGC CTA AGG CTA CCG TTC
 OPA leu pro gly leu thr arg thr thr thr glu ser gly his arg leu arg leu pro phe
 121/41
 TGA CCT GGG CTC CGT GGG CGC CGA CGA GTG AGG CAG TCA TGT CTC AGG GGC CAC CAC CAC
 OPA pro gly val arg gly arg arg arg val arg gln ser cys leu arg ala his arg his
 181/61
 CTC GGT CGC CGG CAG TGT CAG CAT GTC CAG ATG ACT CCA CGC AGC TTG TTC GTG TTG GTG
 leu gly arg arg gln cys gln his val gln met thr pro arg ser leu phe val leu val
 241/81
 TCG TGG TTG CGA CGA CTT CGC GCT GGT GAG CCG ACC CGC CGG COT CGT GCC GCG CAT CCG
 ser trp leu arg arg leu gly ala gly glu arg thr arg arg arg arg ala ala his ala
 301/101
 GAT C
 asp

SEQ ID N° 3A

FIGURE 3A

92/11
 CGC CCG CTC CGC GAC GTA GAT AAT AGC TCA CCG TTG GAC GAC CTC GAC ACG GTC CTT TGT
 arg arg leu ala asp val asp asn ser ser pro leu asp asp leu asp arg val leu cys
 92/31
 GAC TGC CCG GCT TGA CGC GGA CGA CCA CAG AGT CCG CTC ATC GCC TAA GGC TAC CGT TCT
 asp cys arg ala OPA arg gly arg pro gln ser arg val ile ala OCH gly tyr arg ser
 122/41
 GAC CTG GCG TGC GTC GGC GGC GAC GAG TGA GGC AGT CAT GTC TCA GCG CGC ACC GCG ACC
 asp leu gly cys val gly ala asp glu OPA gly ser his val ser gly pro thr ala thr
 182/61
 TCG GTC GCC GGC AGT GTC AGC ATG TGC AGA TGA CTC CAC GCA GGT TGT TCG TGT TCG TGT
 ser val ala gly ser val ser met cys arg OPA leu his ala ala cys ser cys trp cys
 242/81
 CGT GGT TGC GAC GAC TTG GCG CTC GTC AGC CCA CCC GCG GCG GTC GTG CCG CGC ATG CCG
 arg gly cys asp asp leu ala leu val ser ala pro ala gly val val pro arg met arg
 302/101
 ATC
 ile

SEQ ID N° 3B

FIGURE 3B

8/185

33/11
 GCC GGC TCG CGG ACG TAG ATA ATA GCT CAC CCG TGG ACC ACC TCG ACA GGG TCC TTT GTG
 ala gly ser arg thr AMB ile ile ala his arg trp thr thr ser thr gly ser phe val
 63/21
 ACT GCG GGG CTT GAC GCG GAC GAC CAC AGA GTC GGG TCA TCG CCT AAG GCT ACC GTT CTG
 thr ala gly leu asp ala asp asp his arg val gly ser ser pro lys ala thr val leu
 123/41
 ACC TGG GGT GCG TGG GCG CCG ACG AGT GAG GCA GTC ATC TCT CAG GGC CCA CCG CCA CCT
 thr trp gly ala trp ala pro thr ser glu ala val met ser gln gly pro pro pro pro
 183/51
 CCG TCG CCG GCA GTG TCA GCA TGT GCA GAT GAC TCC ACC CAG CTT GTT CCG GTT GGT GTC
 arg ser pro ala val ser ala cys ala asp asp ser thr gln leu val arg val gly val
 243/81
 GTG GTT GCG ACG ACT TGG CCG TCG TGA GCG CAC CCG CCG GCG TCG TCG CCG GCA TCG GGA
 val val ala thr thr trp arg trp OPA ala his pro pro ala ser cys arg ala cys gly
 TC

SEQ ID N° 3C

FIGURE 3C

31/11
 CCA ATT TTC CTT CCG GCC GTG CAA TAC CAT CTG CAA GAC CAG CGA CCG CCC GTC GTT GCG
 pro ile phe leu arg ala val gln tyr his leu gln asp gln arg arg pro val val ala
 61/21
 GTC GCG CAG CTT GCG GAA ACC GCG TAT GGA CCC TCG CGT ACC GTT GTT GCC ACT TGA TGT
 val ala gln leu ala glu thr gly tyr gly pro cys arg thr val val ala thr OPA cys
 121/41
 CGT CGC TCT CCA CCC GTC GGG GGG CGA AAG CCA TTC CGA CAC TGG GAT CCT CAA AAC GTC
 arg arg ser pro pro val gly gly arg lys pro phe arg his trp asp pro gln asp val
 181/61
 GGC TGA GTG TCT GCA GGG CTC CCG GGA GCA GCG GAT CAT CAC CAT GTA CGA ACT GAA TAA
 gly OPA val ser ala gly leu arg gly ala ala asp his his his val arg thr glu OCH
 241/81
 GTC CCC CCG GCG CGA CTT CCA GAC ATT TGT TGT GGT TTC GGT TGA GCG CGA GCG CAG GCT
 val pro arg ala arg leu pro asp ile cys cys gly phe gly OPA gly arg gly glu ala
 301/101
 CAT TTC GCA GCA ACC GGT CTC CCG GTC GCA GCA TCG TTG CCG CGA TCG CCG CCG ACT CCG
 his phe ala ala thr gly leu arg val ala ala ser leu arg arg ser arg arg ser arg
 361/121
 CCG ACG ACT CCG CCG CAA CGA CCA CGA TC
 arg thr ser arg arg gln arg pro arg

SEQ ID N° 4A

FIGURE 4A

9/185

32/11
 CAA TTT TCC TTC GCG CCG TGC AAT ACC ATC TGC AAG ACC AGC GAC GGC CCG TCG TTG CCG
 gln phe ser phe ala pro cys asn thr ile cys lys thr ser asp gly pro trp leu arg
 62/21
 TCG CCG AGC TTG CCG AAA CCG GGT ATG GAC CCT GCC GTA CCG TTG TTG CCA CTT GAT CTC
 ser arg ser leu arg lys pro gly met asp pro ala val pro leu leu pro leu asp val
 122/41
 GTC GCT CTC CAC CCG TCG GGG GCG GAA AGC CAT TCC GAC ACT GGG ATC CTC AAA ACG TCG
 val ala leu his pro ser gly gly glu ser his ser asp thr gly ile leu lys thr ser
 182/61
 GCT GAG TGT CTG CAG GGC TCC GGG GAG CAG CCG ATC ATC ACC ATG TAC GAA CTG AAT AAG
 ala glu cys leu glu gly ser gly glu gln pro ile ile thr met tyr glu leu asn lys
 242/81
 TCC CCC CCG CCG GAC TTC CAG ACA TTT GTT GTG CTT TCG GTT CAG GCC GAG GCG AGG CTC
 ser pro ala arg asp phe gln thr phe val val val ser val glu ala glu ala arg leu
 302/101
 ATT TCG CAG CAA CCG GTC TCC GGG TCG CAG CAT CGT TCG GGC GAT CCG GCG GCA CTC CTC
 ile ser glu gln pro val ser gly ser gln his arg cys gly asp arg gly ala val val
 362/121
 GCA CCA GTC GTC GTC AAC GAC CAC GAT C
 gly arg val val val asn asp his asp

SEQ ID N° 4B

FIGURE 4B

33/11
 AAT TTT CTT TCG CCG CGT GCA ATA CCA TCT GCA AGA CCA GCG ACG GCC CGT GGT TGC CGT
 asn phe pro ser arg arg ala ile pro ser ala arg pro ala thr ala arg gly cys gly
 63/21
 CCG GCA GCT TGC GCA AAC CCG GTA TCG ACC CTG CCG TAC CGT TGT TGC CAC TTG ATG TCG
 arg ala ala cys gly asn arg val trp thr leu pro tyr arg cys cys his leu met ser
 123/41
 TCG CTC TCC ACC CGT CCG GGG GCG AAA GCC ATT CCG ACA CTG GGA TCC TCA AAA CGT CCG
 ser leu ser thr arg arg gly ala lys ala ile pro thr leu gly ser ser lys arg arg
 183/61
 CTG AGT GTC TGC AGG GCT CCG GGG AGC AGC CGA TCA TCA CCA TGT ACG AAC TCA ATA AGT
 leu ser val cys arg ala pro gly ser ser arg ser ser pro cys thr asn gpa ile ser
 243/81
 CCG CCG CCG CCG ACT TCC AGA CAT TTG TTG TGG TTT CCG TTG AGG CCG AGG CGA GGC TCA
 pro pro arg ala thr ser arg his leu leu trp phe arg leu arg pro arg arg gly ser
 303/101
 TTT CCG AGC AAC CCG TCT CCG GGT CCG AGC ATC GTT GCG GCG ATC GCG GCG CAG TCG TCG
 phe arg ser asn arg ser pro gly arg ser ile val ala ala ile ala ala gln ser ser
 363/121
 GAC GAG TCG TCG TCA ACG ACC ACG ATC
 asp glu ser ser ser thr thr thr ile

SEQ ID N° 4C

10/185

partie de la séquence nucléotidique de seq1A

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1/1                               31/31
CCG CGC GCG ACT TCC AGA CAT TTG TTG TGG TTT CCG TTG AGG CCG AGG CGA GGC TCA TTT
pro arg ala thr ser arg his leu leu trp phe arg leu arg pro arg arg gly ser phe
61/21                               91/31
CSC ASC AAG CCG TCT CCG GGT CCG AGC ATC GTT GCG GCG ATC GCG GCG CAG TCG TCG GAC
arg ser lys arg ser pro gly arg ser ile val ala ala ile ala ala gln ser ser asp
121/41
GAG TCG TCG TCA ACG ACC ACG ATC
glu ser ser ser thr thr thr ile

```

SEQ ID N° 4A'

FIGURE 4A'

```

1/1                               31/31
CGC CCG CGA CTT CCA GAC ATT TGT TGT GGT TTC GGT TGA GGC CGA GGC GAG GCT CAT TTC
arg ala arg leu pro asp ile cys cys gly phe gly GGA gly arg gly glu ala his phe
61/21                               91/31
GCA GCA AGC GGT CTC CCG GTC GCA GCA TCG TTG CCG CGA TCG CCG CCG AGT CGT CCG ACC
ala ala ser gly leu arg val ala ala ser leu arg arg ser arg arg ser arg arg thr
121/41
AGT CGT CGT CAA CGA CCA CGA TC
ser arg arg gln arg pro arg

```

SEQ ID N° 4B'

FIGURE 4B'

```

1/1                               31/31
GCC CCG CCG GAC TTC CAG ACA TTT GTT GTG GTT TCG GTT GAG GCG GAG GCG AGG CTC ATT
ala ala arg asp phe gln thr phe val val val ser val glu ala glu ala arg leu ile
61/21                               91/31
TCS CAG CAA GCG GTC TCC GCG TCG CAG CAT CGT TCG GCG GAT CCG GCG GCA GTC GTC GGA
ser gln gln ala val ser gly ser gln his arg cys gly asp arg gly ala val val gly
121/41
CGA GTC GTC GTC AAC GAC CAC GAT C
arg val val val asn asp his asp

```

SEQ ID N° 4C'

FIGURE 4C'

11/185

ORF d'après par Cole et al. (Nature 393:537-544) et contenant la séquence Seq 4A'

```

1/1                               31/11
tga ata agt ccg ccg cgc gcg act tcc aga cat ttg ttg tgg ttc cgg ttg agg ccg agg
CPA ile ser pro pro arg ala thr ser arg his leu leu trp phe arg leu arg pro arg
61/21                               91/31
cga ggc tca ttc cgc agc asg cgg tct cgg ggt cgc agc atc gtt gcg gcg atc gcg gcg
arg gly ser phe arg ser lys arg ser pro gly arg ser ile val ala ala ile ala ala
121/41                               151/51
cag tcc tcc gac gag tcc tgg tca acg acc acg atc tcc aac tcc acg ccc tcc tct tcc
gln ser ser asp gln ser ser ser thr thr thr ile ser asn ser thr pro ser cys ser
181/61                               213/71
agg atg cta cgc aga cag cgc tgg atg gtg gcg ccg ttg ttg tac atc ggg atg cac acc
arg met leu arg arg gln arg ser met val ala pro leu leu tyr ile gly met his thr
241/81                               271/91
gag ata agc ggt ttc gcc ggg ttc acc gat acc acg ctt gat gca tca cca ggc acc acc
gln ile ser gly phe ala gly phe thr asp thr thr leu asp ala ser pro gly thr thr
301/101
tgg cga ctc aga gac tag
trp arg leu arg asp AMB

```

SEQ ID N° 4F

FIGURE 4F

séquence en amont de seq4A' et en fusion avec seq4A'

```

1/1                               31/11
GCA ACC TAC CAG CAG AGC CAG CGC CTC ACA CGA CCT AAA GGA GTA GCG CCC ATG GCT CAT
ala thr tyr gln gln ser gln gly leu thr gly pro lys gly val ala pro met ala asp

```

C

SEQ ID N° 4J

FIGURE 4J

seq4J' dans une autre phase de lecture

```

1/1                               31/11
AGC CAA CCT ACC ACC AGA GGC AGG GGC TCA CAG GAC CTA AAG GAG TAG CGC CCA TGG CTG
thr gln pro thr ser arg ala arg gly ser gln asp leu lys gln AMB arg pro trp leu
61/21
ATC
ile

```

SEQ ID N° 4K

FIGURE 4K

seq 4J' dans la troisième phase de lecture

```

1/1                               31/11
CGC AAC CTA CCA GCA GAG CCA GGG GCT CAC AGG ACC TAA AGG ACT ACC GCC CAT GCG TGA
arg asn leu pro ala gln pro gly ala his arg thr CCH arg ser ser ala his gly CPA

```

TC

SEQ ID N° 4L

FIGURE 4L

FEUILLE DE REMPLACEMENT (REGLE 26)

12/185

séquence Rv2050 prédite par Cole et al. (Nature 393:537-544) et contenant seq6J
 1/1 31/11
 ATG GCT GAT CGT GTC CTG AGG GGC ACT CGC CTC CGA GCC GTG AGC TAT GAG ACC GAC CGC
 Met ala asp arg val leu arg gly ser arg leu gly ala val ser tyr glu thr asp arg
 61/21 91/31
 AAC CAC GAC CTG GCG CCG CGC CAG ATC GCG CGG TAC CGC ACC GAC AAC GGC GAG GAG TTC
 asn his asp leu ala pro arg gln ile ala arg tyr arg thr asp asn gly glu glu phe
 121/41 131/51
 GAA GTC CCG TTC GCC GAT GAC GCC GAG ATC CCC GGC ACC TGG TTG TGC CGC AAC GGC ATG
 glu val pro phe ala asp asp ala glu ile pro gly thr trp leu cys arg asn gly met
 181/61 211/71
 GAA GGC ACC CTG ATC GAG GGC GAC CTG CCC GAG CGG AAG AAG GTT AAG CCG CCC CGG ACC
 glu gly thr leu ile glu gly asp leu pro glu pro lys lys val lys pro pro arg thr
 241/81 271/91
 CAC TGG GAC ATG CTG CTG GAG CGC CGT TCC ATC GAA GAA CTC GAA GAG TTA CTT AAG GAG
 his trp asp met leu leu glu arg arg ser ile glu glu leu glu glu leu leu lys glu
 301/101 331/111
 CGC CTC GAG CTC ATT CGG TCA CGT CGG CGC GGC TGA
 arg leu glu leu ile arg ser arg arg arg gly opa

SEQ ID N° 4M

FIGURE 4M

ORF d'après par Cole et al. (Nature 393:537-544) et contenant la séquence Rv2050
 1/1 31/11
 TAG TCC GCC CGG GTG TCC GAT CCC GGT ATC ATT GAT GGT CGC CCC CGC CGC GTC CGC TGC
 AMB ser ala arg val ser asp pro gly ile ile asp gly arg ala ala arg val ala cys
 61/21 91/31
 CGG GAA CTA CGC AGA CGG CCG CAG CGT TTG CCA ACC GGA GCC AGT CGC CAG TAC GCA ACC
 arg glu leu arg arg arg pro gln arg leu pro thr gly ala ser arg gln tyr ala thr
 121/41 151/51
 TAC CAG CAG AGC CCA GGG CTC ACA GGA CCT AAA GGA GTA GCG CCC ATG GGT GAT CGT GTC
 tyr gln gln ser pro gly leu thr gly pro lys gly val ala pro met ala asp arg val
 181/61 211/71
 CTG AGG GGC AGT CGC CTC GGA GGC GTG AGC TAT GAG ACC GAC CGC AAC CAC GAC CTG CGC
 leu arg gly ser arg leu gly ala val ser tyr glu thr asp arg asn his asp leu ala
 241/81 271/91
 CGG CGC CAG ATC GCG CGG TAC CGC ACC GAC AAC GGC GAG GAG TTC GAA GTC CGG TTC GCC
 pro arg gln ile ala arg tyr arg thr asp asn gly glu glu phe glu val pro phe ala
 301/101 331/111
 GAT GAC GCC GAG ATC CCC GGC ACC TGG TTG TGC CGC AAC GGC ATG GAA GGC ACC CTG ATC
 asp asp ala glu ile pro gly thr trp leu cys arg asn gly met glu gly thr leu ile
 361/121 391/131
 GAG GGC GAC CTG CCC GAG CGG AAG AAG GTT AAG CGC CCC CGG ACC CAC TGG GAC ATG CTC
 glu gly asp leu pro glu pro lys lys val lys pro pro arg thr his trp asp met leu
 421/141 451/151
 CTG GAG CGC CGT TCC ATC GAA GAA CTC GAA GAG TTA CTT AAG GAG CGC CTC GAG CTC ATT
 leu glu arg arg ser ile glu glu leu glu glu leu leu lys glu arg leu glu leu ile
 481/161
 CGG TCA CGT CGG CGC GGC TGA
 arg ser arg arg arg gly opa

SEQ ID N° 4N

13/185

31/11
 GAT CCC GGT CAA CGA GGC CGA ATA CCG CGA GAT GTG GGC CCA AGA CGC CGC CGC GAT GTT
 asp arg gly gln arg gly arg ile arg arg asp val gly pro arg arg arg arg asp val
 61/21
 TGG CTA CGC CGC GGC GAC GGC GAC GGC GAC GGC GAC GTT GGT GCC GTT CGA CGA GGC GCC
 trp leu arg arg gly asp gly asp gly asp gly asp val ala ala val arg gly gly ala
 121/41
 151/51
 GGA GAT GAC CAG CGC GGG TGG GCT CCT CGA GCA GGC CGC CGC GGT CGA GGA GGC CTC CGA
 gly asp asp gln arg gly trp ala pro arg ala gly arg arg gly arg gly gly leu arg
 181/61
 211/71
 CAC CGC CGC GGC GAA CCA GTT GAT GAA CAA TGT GGC CCA GGC GGT GCA ACA GCT GGC CCA
 his arg arg gly glu pro val asp glu gln cys ala pro gly ala ala thr ala gly pro
 241/91
 271/91
 GCC CAC GCA GGG CAC CAC GGC TTC TTC CAA GCT GGG TGG CCT GTG GAA GAC GGT CTC GGC
 ala his ala gly his his ala phe phe gln ala gly trp pro val glu asp gly leu ala
 301/101
 GCA TCG GTC GCC GAT C
 ala ser val ala asp

SEQ ID N° 5A

FIGURE 5A

32/11
 ATC GCG GTC AAC GAG GCC GAA TAC GCG GAG ATG TGG GGC CAA GAC GGC GCC GCG ATG TTT
 ile ala val asn glu ala glu tyr gly glu met trp ala gln asp ala ala ala met phe
 62/21
 92/31
 GGC TAC GGC GCG GCG ACC GCG ACC GCG ACC GCG ACC TTG CTG CCG TTC GAG GAG GCG CCG
 gly tyr ala ala ala thr ala thr ala thr ala thr leu leu pro phe glu glu ala pro
 122/41
 152/51
 GAG ATG ACC ACC GCG GGT GGG CTC CTC GAG CAG GGC GCC GCG GTC GAG GAG GCC TCC GAC
 glu met thr ser ala gly gly leu leu glu gln ala ala ala val glu glu ala ser asp
 182/61
 212/71
 ACC GCC GCG GCG AAC CAG TTG ATG AAC AAT GTG CCC CAG GCG CTC CAA CAG CTC GCC CAG
 thr ala ala ala asn gln leu met asn asn val pro gln ala leu gln gln leu ala gln
 242/91
 272/91
 CCC ACC CAG GGC ACC ACC CCT TCT TCC AAG CTG GGT GGC CTC TGG AAG ACC GTC TCG CCG
 pro thr gln gly thr thr pro ser ser lys leu gly gly leu trp lys thr val ser pro
 302/101
 CAT GCG TCG CCG ATC
 his arg ser pro ile

SEQ ID N° 5B

FIGURE 5B

14/185

33/11
 TCG CCG TCA ACG AGG CCG AAT ACG GCG AGA TGT GGG CCC AAG ACG CCG CCG CGA TGT TTG
 ser arg ser thr arg pro asn thr ala arg cys gly pro lys thr pro pro arg cys leu
 63/21
 GGT ACG CCG CCG CGA CCG CGA CCG CGA CCG CGA CCG CCG CCG TGC TGC CCT TCG AGG AGG CCG CCG
 ala thr pro arg arg arg arg arg arg arg arg arg arg arg cys cys arg ser arg arg arg arg
 123/41
 AGA TGA CCA GCG CCG GTG GGC TCC TCG AGC AGC CCG CCG CCG TCG AGG AGG CCT CCG ACA
 arg opa pro ala arg val gly ser ser ser arg pro pro arg ser arg arg pro pro thr
 183/61
 CCG CCG CCG CGA ACC AGT TGA TGA ACA ATG TGC CCC AGG CCG TGC AAC AGC TGG CCC AGC
 pro pro arg arg thr ser opa opa thr met cys pro arg arg cys asn ser trp pro ser
 243/81
 CCA CCG AGG GCA CCA CCG CTT CTT CCA AGC TGG GTG GCC TGT GGA AGA CCG TCT CCG CCG
 pro arg arg ala pro arg leu leu pro ser trp val ala cys gly arg arg ser arg arg
 303/101
 ATC GGT CCG CGA TC
 ile gly arg arg

SEQ ID N° 5C

FIGURE 5C

partie de la séquence nucléotidique Seq 5A

1/1 31/11
 CCG CCG GGC GAC GGC GAC GGC GAC GGC GAC GTT GGT GCC GTT CGA GCA GCC GCC CGA GAT
 arg arg gly asp gly asp gly asp gly asp val ala ala val arg gly gly ala gly asp
 61/21
 GAC CAG CCG CCG TGG GCT CCT CGA GCA GGC CCG CCG GGT CGA GCA GGC CTC CGA CAC CCG
 asp gln arg gly trp ala pro arg ala gly arg arg gly arg gly gly leu arg his arg
 121/41
 CCG GGC GAA CCA GTT GAT GAA CAA TGT GCC CGA GCC GCT GCA ACA GGT GGC CCA GCC CAC
 arg gly glu pro val asp glu gln cys ala pro gly ala ala thr ala gly pro ala his
 181/61
 GCA GCG CAC CAC GGC TTC TTC CAA GCT GGG TGG CCT GTG GAA GAC GGT CTC GCC GCA TCG
 ala gly his his ala phe phe gln ala gly trp pro val glu asp gly leu ala ala ser
 241/81
 GTC GCC GAT C
 val ala asp

SEQ ID N° 5A'

FIGURE 5A'

15/185

1/1 31/11
TAC GGC GCG GCG ACG GCG ACG GCG ACG GCG ACG TTG CTG CCG TTC GAG GAG GCG CCG GAG
tyr ala ala ala thr ala thr ala thr ala thr leu leu pro phe glu glu ala pro glu
61/21 91/31
ATG ACC AGC GCG GGT GGG CTC CTC GAG CAG GCG GCG GCG GTC GAG GAG GCG TCC GAC ACC
met thr ser ala gly gly leu leu glu gln ala ala ala val glu glu ala ser asp thr
121/41 151/51
GCC GCG GCG AAC CAG TTG ATG AAC AAT GTC CCC CAG GCG CTC CAA CAG CTG GCC CAG CCC
ala ala ala asn gln leu met asn asn val pro gln ala leu gln gln leu ala gln pro
181/61 211/71
ACG CAG GCG ACC ACG CCT TCT TCC AAG CTG GGT GGC CTG TGG AAG ACG GTC TCG CCG CAT
thr gln gly thr thr pro ser ser lys leu gly gly leu trp lys thr val ser pro his
241/81
CSG TCG CCG ATC
arg ser pro ile

SEQ ID N° 5B'

FIGURE 5B'

1/1 31/11
ACG CCG CCG CGA CCG CGA CCG CGA CCG CGA CCG TGC TGC CCG TCG AGG AGG CCG CCG AGA
thr pro arg arg arg arg arg arg arg arg arg arg cys cys arg ser arg arg arg arg
61/21 91/31
TGA CCA GCG CCG GTC GGC TCC TCG AGC AGG CCG CCG CCG TCG AGG AGG CCT CCG ACA CCG
OPA pro ala arg val gly ser ser ser arg pro pro arg ser arg arg pro pro thr pro
121/41 151/51
CCG CCG CGA ACC AGT TGA TGA ACA ATG TGC CCC AGG CCG TGC AAC ACC TGG CCC AGC CCA
pro arg arg thr ser OPA OPA thr met cys pro arg arg cys asn ser trp pro ser pro
181/61 211/71
CGC AGG GCA CCA CCG CTT CTT CCA AGC TGG GTC GCG TGT GGA AGA CCG TCT CGC CCG ATC
arg arg ala pro arg leu leu pro ser trp val ala cys gly arg arg ser arg arg ile
241/81
GGT CCG CGA TC
gly arg arg

SEQ ID N° 5C'

FIGURE 5C'

16/185

ORF prédite par Cole et al. (Nature 393:537-544) et contenant seq5A'

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1/1                               31/11
tga act gat gat tct gat agc gac caa cct ctt ggg gca aaa cac ccc ggc gat cgc ggt
OFA thr asp asp ser asp ser asp gln pro leu gly ala lys his pro gly asp arg gly
61/21                               91/31
caa cga ggc cga ata cgg cga gat gtg ggc cca aga cgc cgc cgc gat gtt tgg cta cgc
gln arg gly arg ile arg arg asp val gly pro arg arg arg arg asp val trp leu arg
121/41                               151/51
cgc ggc gac ggc gac ggc gac ggc gac gtt gct gcc gtt cga gga ggc gcc gga gat gac
arg gly asp gly asp gly asp gly asp val ala ala val arg gly gly ala gly asp asp
181/61                               211/71
cag cgc ggg tgg gct cct cga gca ggc cgc cgc ggt cga gga ggc ctc cga cac cgc cgc
gln arg gly trp ala pro arg ala gly arg arg gly arg gly gly leu arg his arg arg
241/81                               271/91
ggc gaa cca gtt gat gaa caa tgt gcc cca ggc gct gca aca gct ggc cca gcc cac gca
gly glu pro val asp gla gln cys ala pro gly ala ala thr ala gly pro ala his ala
301/101                              331/111
ggg cac cac gcc ttc ttc caa gct ggg tgg cct gtg gaa gac ggt ctc gcc gca tgg gtc
gly his his ala phe phe gln ala gly trp pro val glu asp gly leu ala ala ser val
361/121                              391/131
gcc gat cag caa cat ggt gtc gat ggc caa caa cca cat gtc gat gac caa ctc ggg tgt
ala asp gln gln his gly val asp gly gln gln pro his val asp asp gln leu gly cys
421/141                              451/151
gtc gat gac caa cac ctt gag ctc gat gtt gaa ggg ctt tgc tcc ggc ggc ggc cgc cca
val asp asp gln his leu glu leu asp val glu gly leu cys ser gly gly gly arg pro
481/161                              511/171
ggc cgt gca aac cgc ggc gca aaa cgg ggt cag ggc gat gag ctc gct ggg cag ctc gct
gly arg ala asn arg gly ala lys arg gly pro gly asp glu leu ala gly gln leu ala
541/181                              571/191
ggg ttc ttc ggg tct ggg cgg tgg ggt ggc cgc caa cct ggg tgg ggc ggc ctc ggt cgg
gly phe phe gly ser gly arg trp gly gly arg gln leu gly ser gly gly leu gly arg
601/201                              631/211
ttc gtt gtc ggt gcc gca ggc ctc ggc cgc ggc caa cca ggc agt cac ccc ggc ggc gag
phe val val gly ala ala gly leu gly arg gly gln pro gly ser his pro gly gly ala
661/221                              691/231
ggc gct gcc gct gac cag cct gac cag cgc cgc gga aag agc gcc cgy gca gat gct ggy
gly ala ala ala asp gln pro asp gln arg arg gly lys arg ala arg ala asp ala gly
721/241                              751/251
agg gct gcc ggt ggg gca gat ggg cgc cag ggc cgg tgg tgg gct cag tgg tgt gct ggc
arg ala ala gly gly ala asp gly arg gln gly arg trp trp ala gln trp cys ala ala
781/261                              811/271
tgt tcc gcc ggc acc cta tgt gat gcc gca ttc tcc ggc ggc cgg cta gga gag ggc ggc
cys ser ala ala thr leu cys asp ala ala phe ser gly gly arg leu gly glu gly ala
841/281
cag act gtc gtt att tga
gln thr val val ile OFA

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SEQ ID N° 5F

FIGURE 5F

17/185

séquence Rv1196 prédite par Cole et al. (Nature 393:537-544) et pouvant coder pour une ORF en fusion avec Seq5A'

1/1 31/11
 atg gtg gat ttc ggg gag tta cca cag gag atc aac tcc gag agg atg tac gcc ggc ccg
 Met val asp phe gly ala leu pro pro glu ile asn ser ala arg met tyr ala gly pro
 61/21 91/31
 ggt tgg gcc tgg ctg gtg gcc ggc gct cag atg tgg gac agc gtg gag agt gac ctg ttt
 gly ser ala ser leu val ala ala ala gln met trp asp ser val ala ser asp leu phe
 121/41 151/51
 tgg gcc gag tgg ggc ttt cag tgg gtg gtc tgg ggt ctg acc gtg ggg tgg tgg ata ggt
 ser ala ala ser ala phe gln ser val val trp gly leu thr val gly ser trp ile gly
 181/61 211/71
 tgg tgg ggc ggt ctg atg gtg ggc ggc gcc tgg ccg tat gtg ggc tgg atg agc gtc acc
 ser ser ala gly leu met val ala
 ala ala ser pro tyr val ala trp met ser val thr
 241/81 271/91
 gcc ggg cag gcc gag ctg acc gcc gcc cag gtc cgg gtr gct ggc gcc gcc tac gag acc
 ala gly gln ala glu leu thr ala ala gln val arg val ala ala ala ala tyr glu thr
 301/101 331/111
 gcc tat ggg ctg acc gtg ccc ccg ccg gtg atc gcc gag aac cgt gct gaa ctg atg att
 ala tyr gly leu thr val pro pro pro val ile ala glu asn arg ala glu leu met ile
 361/121 391/131
 ctg ata gcc acc aac ctg ttg ggg cca aac acc ccg gcc atc gcc gtc aac gag gcc gaa
 leu ile ala thr asn leu leu gly gln asn thr pro ala ile ala val asn glu ala glu
 421/141 451/151
 tac gcc gag atg tgg gcc cca gac gcc gcc gcc atg ttt gcc tac gcc gcc gcc acc gcc
 tyr gly glu met trp ala gln asp ala ala ala met phe gly tyr ala ala ala thr ala
 481/161 511/171
 acc gcc acc gcc acc ttg ctg ccg ttc gag gag ccg ccg gag atg acc acc gcc ggt gcc
 thr ala thr ala thr leu leu pro phe glu glu ala pro glu met thr ser ala gly gly
 541/181 571/191
 ctg ctc gag cag gcc gcc gcc gtc gag gag gcc tcc gac acc gcc gcc gcc aac cag ttg
 leu leu glu gln ala ala ala val glu glu ala ser asp thr ala ala ala asn gln leu
 601/201 631/211
 atg aac aat gtg ccc cag gcc ctg cca cag ctg gcc cag ccc acc cag gcc acc acc cct
 met asn asn val pro gln ala leu gln gln leu ala gln pro thr gln gly thr thr pro
 661/221 691/231
 tct tcc aag ctg ggt gcc ctg tgg aag acc gtc tgg ccg cat cgg tgg ccg atc agc aac
 ser ser lys leu gly gly leu trp lys thr val ser pro his arg ser pro ile ser asn
 721/241 751/251
 atg gtg tgg atg gcc aac aac ccc atg tgg atg acc aac tgg ggt gtc tgg atg acc aac
 met val ser met ala asn asn his met ser met thr asn ser gly val ser met thr asn
 781/261 811/271
 acc ttg agc tgg atg ttg aag gcc ttt gct ccg gcc gcc gcc gcc cag gcc gtc cca acc
 thr leu ser ser met leu lys gly phe ala pro ala ala ala ala gln ala val gln thr
 841/281 871/291
 gcc gcc cca aac ggg gtc ccg gcc atg agc tgg ctg gcc agc tgg ctg ggt tct tgg ggt
 ala ala gln asn gly val arg ala met ser ser leu gly ser ser leu gly ser ser gly
 901/301 931/311
 ctg gcc ggt ggg gtg gcc gcc aac ttg ggt ccg gcc gcc tgg gtc ggt tgg ttg tgg gtc
 leu gly gly gly val ala ala asn leu gly arg ala ala ser val gly ser leu ser val
 961/321 991/331
 ccg cag gcc tgg gcc gcc gcc aac cag gcc gtc acc ccg gcc gcc gcc gcc ctg ccg ctg
 pro gln ala trp ala ala ala asn gln ala val thr pro ala ala arg ala leu pro leu
 1021/341 1051/351
 acc agc ctg acc agc gcc gcc gaa aga ggg ccc ggg cag atg ctg gcc gcc ctg ccg gtc
 thr ser leu thr ser ala ala glu arg gly pro gly gln met leu gly gly leu pro val
 1081/361 1111/371
 ggg cag atg gcc gcc agc gcc ggt ggt ggg ctc agt ggt gtc ctg cgt gtt ccg ccg cca
 gly gln met gly ala arg ala gly gly gly leu ser gly val leu arg val pro pro arg
 1141/381 1171/391
 ccc tat gtg atg ccg cat tcc ccg gcc gcc gcc tgg
 pro tyr val met pro his ser pro ala ala gly AAB

SEQ ID N° 5R

FIGURE 5R
 FEUILLE DE REMPLACEMENT (REGLE 26)

10/185

Seq 5P: ORF d'après Cole et al. (Nature 363:537-544) et contenant la séquence Rv1196

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1/1                               31/11
tag gga cac gta atg gtg gat ttc ggg ggc cta cca ccg gag atc aac tcc ggc agg atg
AMB gly his val met val asp phe gly ala leu pro pro glu ala asn ser ala arg met
61/21                               91/31
tac gcc ggc ccg ggt tag gcc tag ctg gtg gcc ggc gcc cag atg tgg gac agc gtg gcc
tyr ala gly pro gly ser ala ser leu val ala ala ala gln met trp asp ser val ala
121/41                               151/51
agt gac ctg ttt ccg gcc ggc tag gcc ttt cag ccg gtg gtc tgg ggt ctg acg gtg ggg
ser asp leu phe ser ala ala ser ala phe gln ser val val trp gly leu thr val gly
181/61                               211/71
tcg tgg ata ggt ccg tag gcc ggt ctg atg gtg gcc gcc gcc tag ccg tat gtg gcc tgg
ser trp ile gly ser ser ala gly leu met val ala ala ala ser pro tyr val ala trp
241/81                               271/91
atg agc gtc acc gcc ggc cag gcc gag ctg acc gcc gcc cag gtc cgg gtt gct gcc gcc
met ser val thr ala gly gln ala gln leu thr ala ala gln val arg val ala ala ala
301/101                               331/111
gcc tac gag acg gcc tat ggg ctg acg gtg ccc ccg ccg gtg acc gcc gag aac cgt gct
ala tyr glu thr ala tyr gly leu thr val pro pro pro val ile ala glu asn arg ala
361/121                               391/131
gaa ctg atg att ctg ata gcc acc aac ctg tgg ggg caa aac acc ccg gcc atc gcc gtc
glu leu met ile leu ile ala thr asn leu leu gly gln asn thr pro ala ile ala val
421/141                               451/151
aac gag gcc gaa tac gcc gag atg tgg gcc caa gac gcc gcc gcc atg ttt ggc tac gcc
asn glu ala glu tyr gly gln met trp ala gln asp ala ala ala met phe gly tyr ala
481/161                               511/171
gcc gcc acc gcc acc gcc acc gcc acc ctg ctg ccg ttc gag gag gcc ccg gag atg acc
ala ala thr ala thr ala thr ala thr leu leu pro phe glu glu ala pro glu met thr
541/181                               571/191
agc gcc ggt ggg ctg ctg gag cag gcc gcc gcc gcc gtc gag gag gcc tcc gcc acc gcc gcc
ser ala gly gly leu leu glu gln ala ala ala val glu glu ala ser asp thr ala ala
601/201                               631/211
gcc aac cag tgg atg aac aat gtg ccc cag gcc ctg caa cag ctg gcc cag ccc acc cag
ala asn gln leu met asn asn val pro gln ala leu gln gln leu ala gln pro thr gln
661/221                               691/231
gcc acc acc cct tct tcc aag ctg ggt gcc ctg tgg aag acc gtc tag ccg cat cgg tag
gly thr thr pro ser ser lys leu gly gly leu trp lys thr val ser pro his arg ser
721/241                               751/251
ccg atc agc aac atg gtg tag atg gcc aac aac cag atg tag atg acc aac tag ggt gtg
pro ile ser asn met val ser met ala asn asn his met ser met thr asn ser gly val
781/261                               811/271
tag atg acc aac acc tgg agc tag atg ctg aag gcc ttt gct ccg gcc gcc gcc gcc cag
ser met thr asn thr leu ser ser met leu lys gly phe ala pro ala ala ala ala gln
841/281                               871/291
gcc gtg caa acc gcc gcc caa aac ggg gtc ccg gcc atg agc tag ctg gcc agc tag ctg
ala val gln thr ala ala gln asn gly val arg ala met ser ser leu gly ser ser leu
901/301                               931/311
ggt tct tag ggt ctg gcc ggt ggg gtg gcc gcc aac ttt ggt ccg gcc gcc gcc gcc gcc
gly ser ser gly leu gly gly gly val ala ala asn leu gly arg ala ala ser val gly
961/321                               991/331
tcg tgg tag gtg ccg cag gcc tgg gcc gcc gcc aac cag gca gtc acc ccg gcc gcc gcc
ser leu ser val pro gln ala trp ala ala ala asn gln ala val thr pro ala ala arg
1021/341                               1051/351
gcc ctg ccg ctg acc agc ctg acc agc gcc gcc gcc gaa aga ggg ccc ggg cag atg ctg gcc
ala leu pro leu thr ser leu thr ser ala ala glu arg gly pro gly gln met leu gly
1081/361 1111/371
ggg ctg ccg gcc ggg cag atg gcc gcc agc gcc ggt ggt ggg ctg agt ggt gtg ctg cgt
gly leu pro val gly gln met gly ala arg ala gly gly gly leu ser gly val leu arg
1141/381                               1171/391
gtt ccg ccg cga ccc tat gtg atg ccg cat tat ccg gcc gcc gcc tag
val pro pro arg pro tyr val met pro his ser pro ala ala gly AMB

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SEQ ID N° 5P

19/185

31/11
 GGA TCC TGA TCC AAG TGG TCC GGG ATT TGT CCG CAG CCA CCG CCG TCC CGT CGA CCA ACG
 gly ser GFA cys lys trp ser gly ile cys arg gln pro arg arg ser arg arg pro thr
 61/21
 TTG GTG CAT CCG GGC TGC GAG CAT GCA CCG ACC GAC CAG CCG GGC GAG CCG GGC TAG CTG
 leu val his pro gly cys glu his ala arg thr asp gln arg gly glu arg gly AMB leu
 121/41
 CTT GCC CAC TGT TCC TCC CTG CCG GCA CCA TGT GCG ACA AGC TTA AGC GCA GCA GTA CCG
 leu ala his cys ser ser leu pro ala pro cys ala thr ser leu ser ala ala val pro
 181/61
 GCG GTG CCT GGG CAT CCA GCA AAA CCG GGA GGT CAA GAA CCA TTC ATG AAC GAG GGG TCG
 ala val pro gly his pro ala lys arg gly ala gln glu arg phe met asn glu gly sec
 241/81
 TCA CCA ACG TCG AAA CCG ACG GTT GCC AGC CCG CCC ACG ATA TTG CGT GGT CGA GCG TCC
 ser pro thr ser lys pro thr val ala ser arg pro thr ile leu arg ala arg gly ser
 301/101
 GCT GTA CCC TCA CCG AAC GTG AGT CCC ACA CCG CCG AGG CCG GCG ACT CTG CCG TCG TTA
 ala val pro ser pro asn val ser pro thr pro arg arg arg ala thr leu ala ser leu
 361/121
 GCA GCC GAG CTC AAG GTG TCC CCG ACC ACT CTC TCG AAT GCT TTT AAC CCA CCG GAT CCA
 ala ala gln leu lys val ser arg thr thr val ser asn ala phe asn arg pro asp pro
 421/141
 GAA GGA GAA GAT C
 glu gly glu asp

SEQ ID N° 6A

FIGURE 6A

32/11
 GAT CCT GAT GCA AGT GGT CCG GGA TTT CTC GGC AGC CAC GGC GGT CCC CTC GAC CAA CGT
 asp pro asp ala ser gly pro gly phe val gly ser his gly gly pro val asp gln arg
 62/21
 TGG TGC ATC CCG GCT GCG AGC ATG CAG GCA CCG ACC AGC GCG CCG AGC GCG GCT AGC TCC
 trp cys ile arg ala ala ser met his ala pro thr ser ala ala ser ala ala ser cys
 122/41
 TTG CCC ACT GTT CTT CCC TGC CCG CAC CAT CTC CGA CAA GCT TAA GCG CAG CAG TAC CCG
 leu pro thr val pro pro cys arg his his val arg gln ala CCH ala gln gln tyr arg
 182/61
 CCG TGC CTG GGC ATC CAG CAA AAC GGG GAG CTC AAG AAC GAT TCA TGA ACG AGG GGT CGT
 arg cys leu gly ile gln gln asn gly gln leu lys asn asp ser GFA thr arg gly arg
 242/81
 CAC CAA CGT CGA AAC CGA CCG TTG CCA GCC GGC CCA CGA TAT TGC GTG CTC GAG GGT CCG
 his gln arg arg asn arg arg leu pro ala gly pro arg tyr cys val leu glu gly pro
 302/101
 CTG TAC CCT CAC CGA ACG TGA GTC CCA CAC CCG GGA GGC GGG CGA CTC TCG CGT CGT TAG
 leu tyr pro his arg thr GFA val pro his arg gly gly gly arg leu trp arg arg AMB
 362/121
 CAG CCG AGC TCA AGG TGT CCC GCA CCA CTG TCT CGA ATG CTT TTA ACC GAC CCG ATC CAG
 gln pro ser ser arg cys pro ala pro leu ser arg met leu leu thr asp arg ile gln
 422/141
 AAG GAG AAG ATC
 lys glu lys ile

SEQ ID N° 6B

FIGURE 6B

FEUILLE DE REMPLACEMENT (REGLE 26)

20/185

33/11
 ATC CTC ATC CAA GTG GTC CCG GAT TTG TCG GCA GCC ACC GCG GTC CCG TCG ACC AAC GTT
 ile leu met gln val val arg asp leu ser ala ala thr ala val pro ser thr asn val
 63/21
 GGT GCA TCC GGG CTG CGA GCA TGC ACC CAC CGA CCA GCG CCG CGA GCG CCG CTA GGT GCT
 gly ala ser gly leu arg ala cys thr his arg pro ala arg arg ala arg leu ala ala
 123/41
 TGC CCA CTG TTC CTC CCT GGC GGC ACC ATG TGC GAC AAG CTT AAG CCG ACC AGT ACC GGC
 cys pro leu phe leu pro ala gly thr met cys asp lys leu lys arg ser ser thr gly
 183/61
 GGT GCC TGG GCA TCC AGC AAA ACC GGG AGC TCA AGA ACG ATT CAT GAA CGA GGG GTC GTC
 gly ala trp ala ser ser lys thr gly ser ser arg thr ile his glu arg gly val val
 243/81
 ACC AAC GTC GAA ACC GAC GGT TGC CAG CCG GGC CAC GAT ATT GCG TGC TCG AGG GTC CCG
 thr asn val glu thr asp gly cys gln pro ala his asp ile ala cys ser arg val arg
 303/101
 TGT ACC CTC ACC GAA GGT GAG TCC CAC ACC GCG GAG GCG GGC GAC TCT GGC GTC GTT ACC
 cys thr leu thr glu arg gla ser his thr ala glu ala gly asp ser gly val val ser
 363/121
 AGC CGA GCT CAA GGT GTC CCG CAC CAC TGT CTC GAA TCG TTT TAA CCG ACC GGA TCC AGA
 ser arg ala glu gly val pro his his cys leu glu cys phe och pro thr gly ser arg
 423/141
 AGG AGA AGA TC
 arg arg arg

SEQ ID N° 6C

FIGURE 6C

31/11
 CCG TCG GCA ACT TGG CCG CTG AGG TCG GGT TGA TCC CTG GGC CGA GGC GGG TCA CCC AAT
 pro ser ala thr trp pro leu arg ser ala GFA ser leu gly arg gly gly ser ala ser
 61/21
 AGC GGC TCC ATC GGC TTT GGT GGT AGC GGT TCG GCG GGA AGC TAG CCG CGA GGT TGT CCG
 ser gly ser ile gly phe ala gly ser gly ser ala gly ser AMB arg arg arg cys arg
 121/41
 TGG CCG GTG ATA TAT TCG GTC AGA CCG GTA TGG CCG CCG CTG AGG TGA TCT GCG ACA CCG
 trp pro val ile tyr trp val arg arg val trp arg arg leu arg GFA ser ala thr arg
 181/61
 CCG CCG GGT GGT GCA GCC AGG CTT AGC ACC AGG GAA TTT CGA AAA TCT TAT TCA GAA CAT
 arg arg gly ala arg ala arg leu thr thr arg glu phe arg lys cys tyr ser glu his
 241/81
 CTT GTA TCT CTT CTC GGT GGC ACC CCC TAG GTC TAG TGT TTT CGA GTA CCG GCA GAT CCC
 leu val ser leu leu arg ala thr pro AMB val AMB cys phe arg val pro ala asp pro
 301/101
 AGG TTC ACC AGG TCT CAC CAG ATC
 arg phe thr arg ser his gln ile

SEQ ID N° 7A

FIGURE 7A

21/185

32/11
 CGT CGG CAA CTT GGC CGC TGA GGT CGG CTT GAT CCC TCG GCC GAG GCG GGT CAG CCA ATA
 arg arg gln leu gly arg OPA gly arg leu asp pro trp ala glu ala gly gln pro ile
 62/21
 GCG GCT CCA TCG GCT TTG CTG GTA GCG CTT CGG CGG GAA GCT AGC GGC GAC GTT GTC GGT
 ala ala pro ser ala leu leu val ala val arg arg glu ala ser gly asp val val gly
 122/41
 GGC CGG TGA TAT ATT GGG TCA GAC GGG TAT GGC GGC GGC TGA GGT GAT CTG CGA CAC GCC
 gly arg OPA tyr ile gly ser asp gly tyr gly gly gly OPA gly asp leu arg his ala
 182/61
 GGC GCG CTG CTC GAG CCA GGC TTA CGA CCA GCG AAT TTC GAA AAT GTT ATT CAG AAC ATC
 ala ala val leu glu pro gly leu arg pro gly asn phe glu asn val ile gln asn ile
 242/81
 TTG TAT CTC TTC TCG GTG CCA CCC CCT AGG TGT AGT GTT TTC GAG TAC CGG CAG ATC CCA
 leu tyr leu phe ser val pro pro pro arg cys ser val phe glu tyr arg gln ile pro
 302/101
 GGT TCA CCA GGT CTC ACC AGA TC
 gly ser pro gly leu thr arg

SEQ ID N° 7B

FIGURE 7B

33/11
 GTC GGC AAC TTG GGC GGT GAG GTC GGC TTG ATC CCT GCG CGG AGG CGG GTC AGC CAA TAG
 val gly asn leu ala ala glu val gly leu ile pro gly pro arg arg val ser gln AMB
 63/31
 CCG CTC CAT CGG CTT TCG TGG TAG CCG TTC GCG GCG AAG CTA CCG GCG AGC TTC TCG GTC
 arg leu his arg leu cys trp AMB arg phe gly gly lys leu ala ala thr leu ser val
 123/41
 GCC GGT GAT ATA TTG GGT CAG ACG GGT ATG GCG GCG GCT GAG GTG ATC TCG GAC ACG CCG
 ala gly asp ile leu gly gln thr gly met ala ala ala glu val ile cys asp thr pro
 183/61
 CCG CGG TCG TCG AGC CAG GCT TAC GAC CAG GGA ATT TCG AAA ATG TTA TTC AGA ACA TCT
 pro arg cys ser ser gln ala tyr asp gln gly ile ser lys met leu phe arg thr ser
 243/81
 TGT ATC TCT TCT CCG TCG CAC CCC CTA GGT GTA GTG TTT TCG AGT ACC GGC AGA TUC CAG
 cys ile ser ser pro cys his pro leu gly val val phe ser ser thr gly arg ser gln
 303/101
 GTT CAC CAG GTC TCA CCA GAT C
 val his gln val ser pro asp

SEQ ID N° 7C

FIGURE 7C

22/185

31/11
 CTT TGC GTG ATG TCC AAT GGC GAA AAC GAC GCC TTG TCA TCG CAA TCG TCA GCA CCG GCC
 leu cys val met ser asn gly glu asn asp ala leu ser ser gln ser ser ala pro ala
 61/21
 TAG TTT TCG CGA TGA CSC TCG TTC TGA CCG GAC TTG TGA ACG GGT TTC GCG TCG AGG CCG
 AMB phe ser arg OPA arg ser phe OPA pro asp leu OPA thr gly phe gly ser arg pro
 121/41
 AGC GAA CCG TCG ATT CCA TGG GTG TCG ACG CAT TCG TGG TCA AGG CCG GCG CCG CAG GAC
 ser glu pro ser ile pro trp val ser thr his ser trp ser arg pro ala arg gln asp
 181/61
 CCG TCC TGG GTT CGA CAC CAT TCG CCC AAA TCG ACC TCG CCC AGG TTG CTC GTG CSC CTC
 arg ser trp val arg his his ser pro lys ser thr cys pro arg leu leu val arg leu
 241/81
 GCG TCT TGG CTG CCG CSC CAC TAG CGA CTG CSC CCG CGA CGA TCC GCG AGG GCA CCG CAG
 ala ser trp leu pro pro his AMB arg leu arg arg arg arg ser gly arg ala arg gln
 301/101
 CCG GAA ACG TCA CCG CCG TCG GCG CAC CAG AGC ACG GAC CCG GCA TCG CCG GCG TCT CCG
 arg glu thr ser pro arg ser gly his gln ser thr asp pro ala cys arg gly ser arg
 361/121
 ACG CTC CCG CSC CAT CGA CSC CCG ACG AGG TCG CCG TGT CGA GCA CCG TGG GCG GAA ACC
 thr val gly arg his arg arg arg thr arg ser arg cys arg ala arg trp ala glu thr
 421/141
 TCG GCG ACG ATC
 ser ala thr ile

SEQ ID N° 8A

FIGURE 8A

32/11
 TTT GCG TGA TGT CCA ATG GCG AAA ACG ACG CCG TGT CAT CGC AAT CCG CAG CAC CCG CCT
 phe ala OPA cys pro met ala lys thr thr pro cys his arg asn arg gln his arg pro
 62/21
 AGT TTT CCG GAT GAC GGT CCG TCT GAC CCG ACT TGT GAA CCG GTT TCG GGT CGA GCG CGA
 ser phe arg asp asp ala arg ser asp arg thr cys glu arg val ser gly arg gly arg
 122/41
 GCG AAC CCG CGA TTC CAT GCG TGT CGA CSC ATT CCG GGT CAA GCG CCG CCG GCG AGG ACC
 ala asn arg arg phe his gly cys arg arg ile arg gly gln gly arg arg gly arg thr
 182/61
 GTT CCG GCG TTC GAC ACC ATT CCG CCA AAT CGA CCG GCG CCA GGT TCG TCG TCG GCG TCG
 val pro gly phe asp thr ile arg pro asn arg pro ala pro gly cys ser cys ala trp
 242/81
 CGT CTT GCG TCG CCG CCC ACT AGC GAC TCG GCG CTC GAC CAT CCC GCA CCG CAC CTC AGC
 arg leu gly cys arg pro thr ser asp cys ala val asp asp pro ala gly his val ser
 302/101
 GCG AAA CCG CAC CCG GTT CCG GCG ACC AGA GCA CCG ACC CCG CAT GCG CCG GGT CTC CGA
 ala lys arg his arg val arg gly thr arg ala arg thr arg his ala ala gly leu gly
 362/121
 CCG TCG GCG CCG ATC GAC GCG GCA CGA GGT GCG GGT CTC GAC CAC GGT CCG CCG AAA CCG
 arg ser gly ala ile asp ala gly arg gly arg gly val glu his ala gly pro lys pro
 422/141
 CCG CGA CGA TC
 arg arg arg

SEQ ID N° 8B

23/185

33/11
 TTG CGT GAT GTC CAA TGG CGA AAA CGA CGC CTT GTC ATC GCA ATC GTC AGC ACC GGC CTA
 leu arg asp val gln trp arg lys arg arg leu val ile ala ile val ser thr gly leu
 63/21
 GTT TTC GCG ATG ACC CTC GTT CTG ACC GGA CTT GTG AAC GGG TTT CCG GTC CAG GCC GAG
 val phe ala met thr leu val leu thr gly leu val asn gly phe arg val glu ala glu
 123/41
 CGA ACC GTC GAT TCC ATG GGT GTC GAC GCA TTC GTG GTC AAG GCG GGC GCG GCA GGA CCG
 arg thr val asp ser met gly val asp ala phe val val lys ala gly ala ala gly pro
 183/61
 TTC CTG GGT TCG ACA CCA TTC GCG CAA ATC GAC CTG CCC CAG GTT GCT CGT GCG CCT GGC
 phe leu gly ser thr pro phe ala gln ile asp leu pro gln val ala arg ala pro gly
 243/81
 GTC TTG GGT GCG GCG CCA CTA GCG ACT GCG CCG TCG ACC ATC CCG CAG GGC ACC TCA GCG
 val leu ala ala ala pro leu ala thr ala pro ser thr ile arg gln gly thr ser ala
 303/101
 CGA AAC GTC ACC GCG TTC GCG GCA CCA GAG CAC GGA CCC GCG ATG CCG CCG GTC TCG GAC
 arg asn val thr ala phe gly ala pro glu his gly pro gly met pro arg val ser asp
 363/121
 GGT CCG GCG CCA TCG ACC CCG GAC GAG GTC CCG GTG TCG ACC ACC CTG GCG CCA AAC CTC
 gly arg ala pro ser thr pro asp glu val ala val ser ser thr leu gly arg asn leu
 423/141
 GGC GAC GAT C
 gly asp asp

SEQ ID N° 8C

FIGURE 8C

partie de la séquence nucléotidique de seq8A

1/1
 CAG GTT GCT CGT GCG CCT GGC GTC TTG GCT GCG GCG CCA CTA GCG ACT GCG CCG TCG ACC
 gln val ala arg ala pro gly val leu ala ala ala pro leu ala thr ala pro ser thr
 61/21
 ATC CCG CAG GGC ACC TCA GCG CGA AAC GTC ACC GCG TTC GGG GCA CCA GAG CAC GGA CCC
 ile arg gln gly thr ser ala arg asn val thr ala phe gly ala pro glu his gly pro
 121/41
 GGC ATG CCG CCG GTC TCG GAC GGT CCG GCG CCA TCG ACC CCG GAC GAG GTC GCG GTC TCG
 gly met pro arg val ser asp gly arg ala pro ser thr pro asp glu val ala val ser
 181/61
 ACC ACC CTG GCG CCA AAC CTC GGC GAC GAT C
 ser thr leu gly arg asn leu gly asp asp

SEQ ID N° 8A'

FIGURE 8A'

24/105

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1/1                               31/31
AGG TTG CTC GTG CGC CTG GCG TCT TGG CTG CCG CCC CAC TAG CGA CTG CCG CGT CGA CGA
arg leu leu val arg leu ala ser trp leu pro pro his AMB arg leu arg arg arg arg
61/21                               91/31
TCC GGC AGG GCA CGT CAG CCG GAA ACG TCA CCG CGT TCG GCG CAC CAG AGC ACC GAC CCG
ser gly arg ala arg gln arg glu thr ser pro arg ser gly his gln ser thr asp pro
121/41                               151/51
GCA TGC CCG GGG TCT CCG ACG CTC GGG CCG CAT CGA CCG CCG ACG AGG TCG CCG TGT CGA
ala cys arg gly ser arg thr val gly arg his arg arg arg thr arg ser arg cys arg
181/61
GCA CCG TGG GCC GAA ACC TCG GCG ACG ATC
ala arg trp ala glu thr ser ala thr ile

```

SEQ ID N° 8B'

FIGURE 8B'

Seq8C

```

1/1                               31/31
CCA GGT TGC TGC TGC GCC TGG CGT CTT GGC TGC CCG CCC ACT AGC GAC TGC GCC GTC GAC
pro gly cys ser cys ala trp arg leu gly cys arg pro thr ser asp cys ala val asp
61/21                               91/31
GAT CCG GCA GGG CAC GTC AGC GCG AAA CGT CAC CCG GTT CCG GGC ACC AGA GCA CCG ACC
asp pro ala gly his val ser ala lys arg his arg val arg gly thr arg ala arg thr
121/41                               151/51
CGG CAT GCC GCG GGT CTC GGA CCG TCG GCG GCC ATC GAC GCC GGA CGA GGT CCG GGT GTC
arg his ala ala gly leu gly arg ser gly ala ile asp ala gly arg gly arg gly val
181/61
GAG CAC GGT GCG CCG AAA CCT CCG CGA CGA TC
glu his ala gly pro lys pro arg arg arg

```

SEQ ID N° 8C'

FIGURE 8C'

25/185

séquence Rv2553 prédite par Cole et al. (Nature 393:537-544) et contenant seq8A'

```

atg
met
121/41
ctt ttt gag gct ttg cgt gat gtc caa tgg cga aaa cga cgc ctt gtc atc gca atc gtc
leu phe ala ala leu arg asp val gln trp arg lys arg arg leu val ile ala ile val
181/61
agc acc ggc cta gtt ttc gag atg acg ctc gtt ctg acc gga ctt gtc aac ggg ttt cgg
ser thr gly leu val phe ala met thr leu val leu thr gly leu val asn gly phe arg
241/81
gtc gag gcc gag cga acc gtc gat tcc atg ggt gtc gac gca ttc gtc gtc aag gcc ggc
val glu ala glu arg thr val asp ser met gly val asp ala phe val val lys ala gly
301/101
ggg gca gga cgg ttc ctg ggt tog aca cca ttc gcc caa atc gac ctg ccc cag gtt gct
ala ala gly pro phe leu gly ser thr pro phe ala gln ile asp leu pro gln val ala
361/121
cgt gag cct ggc gtc ttg gct gcc gcc cca cta ggc act gag cgg tog acg atc cgg cag
arg ala pro gly val leu ala ala ala pro leu ala thr ala pro ser thr ile arg gln
421/141
ggc acg tca ggc cga aac gtc acc ggc ttc ggg gca cca gag cac gga ccc gcc atg cgg
gly thr ser ala arg asn val thr ala phe gly ala pro glu his gly pro gly met pro
481/161
cgg gtc tog gac ggt cgg gcc cca tog acg ccg gac gag gtc gag gtc tog agc acg ctg
arg val ser asp gly arg ala pro ser thr pro asp glu val ala val ser ser thr leu
541/181
ggc cga aac ctc gcc gac gat ctg caa gtc ggt gcc cgc act ttg cgg atc gtc gcc atc
gly arg asn leu gly asp asp leu gln val gly ala arg thr leu arg ile val gly ile
601/201
gtg ccc gag tca acc ggc ctg gca aag att ccc aac atc ttc ctg acc acc gaa gcc cta
val pro glu ser thr ala leu ala lys ile pro asn ile phe leu thr thr gla gly leu
661/221
cag cag ttg gca tac aac gga cag ccg aca atc agt tog atc ggg atc gac ggg atg ccc
gln gln leu ala tyr asn gly gln pro thr ile ser ser ile gly ile asp gly met pro
721/241
cga cag ctc cgg gac gcc tat cag acc gtc aat cga ggc gat gct gtc agc gat ctg atg
arg gln leu pro asp gly tyr gln thr val asn arg ala asp ala val ser asp leu met
781/261
cgc ccg ttg aag gtc gag gtc gat gcc atc acg gtt gtc gag gtc ttg ctg tgg atc gtt
arg pro leu lys val ala val asp ala ile thr val val ala val leu leu trp ile val
841/281
ggg gag ttg atc gtc gcc tog gtc gtc tac ctc tcc gag ttg gag cgg ctg cgt gac ttt
ala ala leu ile val gly ser val val tyr leu ser ala leu glu arg leu arg asp phe
901/301
ggg gtc ttc aag ggc atc gcc gtc ccg acg cgc tog att ctg gcc ggg ctg gcc ctg cag
ala val phe lys ala ile gly val pro thr arg ser ile leu ala gly leu ala leu gln
961/321
ggg gtc gtc gtc gag ctg ctc gcc gcc gtc gtt gcc ggc atc ctt tog ctg ctg tog gcc
ala val val val ala leu leu ala ala val val gly gly ile leu ser leu leu leu ala
1021/341
ccg ttg ttc cgg atg acc gtc gtc gta ccc ctg agt gcc ttc gtc gcc cta ccg gcc atc
pro leu phe pro met thr val val val pro leu ser ala phe val ala leu pro ala ile
1081/361
ggg act gtc atc ggt ctg ctg gcc agc gtc gca gga cgg cgg cag gtc gtc gcc atc gat
ala thr val ile gly leu leu ala ser val ala gly leu arg arg val val ala ile asp
1141/381
cgg gca cta gcc ttc gga ggt ccc tag
pro ala leu ala phe gly gly pro AMB

```

SEQ ID N° 80

FEUILLE DE REMPLACEMENT (REGLE 26)

26/185

ONF prédite par Cole et al. (Nature 393:537-544) et contenant Kv25f3

1/1
 tag gtc tca aga agg act gtg cag gtt tcc gca gcc tgg gcc gcg gcg cca ccg aag agc
 AMS val ser arg arg pro val gln val ser ala ala trp ala ala ala pro pro lys ser
 51/31
 ccg ccg asa tgg gct aat cgg gtt cgc ttg gct cga tgg ccg atg atc tgg acc gcc acc
 pro pro lys trp ala asn arg val arg leu ala arg ser pro met ile ser thr ala thr
 121/41
 acc gac ccc ctc acc tgg gtc gaa cct cgg cga acc aac gcg gca acg cca gcc cat gat
 thr asp pro leu thr ser val glu pro arg arg thr asn ala ala thr pro ala his asp
 181/61
 cat tgg att ggg tcc acg gaa gca ggt agc ttc cgt cgc atg ctt ttt gcg gct ttg cgt
 his leu ile gly ser thr glu ala gly ser phe arg arg met leu phe ala ala leu arg
 241/81
 gat gtc caa tgg cga aaa cga cgc ctc gtc atc gca atc gtc agc acc gcc cta gtt ttc
 asp val gln trp arg lys arg arg leu val ile ala ile val ser thr gly leu val phe
 301/101
 gcg atg acc ctc gtt ctg acc gga ctt gtg aac ggg ttt ccg gtc gag gcc gag cga acc
 ala met thr leu val leu thr gly leu val asn gly phe arg val glu ala glu acg thr
 361/121
 gtc gat tcc atg ggt gtc gac gca ttc gtg gtc aag gcc ggc gcg gca gga ccg ttc ctc
 val asp ser met gly val asp ala phe val val lys ala gly ala ala gly pro phe leu
 421/141
 ggt tgg aca cca ttc gcc caa atc gac ctg ccc cag gtt gct cgt gcg cct gcc ctc tgg
 gly ser thr pro phe ala gln ile asp leu pro gln val ala arg ala pro gly val leu
 481/161
 gct gcc gcc cca cta gcg act gcg ccg tgg acc atc cgg cag gcc acc tca gcg cga aac
 ala ala ala pro leu ala thr ala pro ser thr ile arg gln gly thr ser ala arg asn
 541/181
 gtc acc gcg ttc ggg gca cca gag cag gga ccc gcc atg ccg ccg gtc tgg gac ggt cgg
 val thr ala phe gly ala pro glu his gly pro gly met pro arg val ser asp gly arg
 601/201
 gcg cca tgg acc ccg gac gag gtc gcg gtg tgg acc acc cty gcc cga aac ctc gcc gac
 ala pro ser thr pro asp gln val ala val ser ser thr leu gly arg asn leu gly asp
 661/221
 gat ctg caa tgg ggt gcg cgc act ttg cgg atc gtc gcc atc gtc ccc gag tca acc gcg
 asp leu gln val gly ala arg thr leu arg ile val gly ile val pro glu ser thr ala
 721/241
 ctg gca aag att ccc aac atc ttc ctg acc acc gaa gcc cta cag cag ctg gca taa aac
 leu ala lys ile pro asn ile phe leu thr thr glu gly leu gln gln leu ala tyr asn
 781/261
 gga cag ccg aca atc agt tgg atc ggg atc gac ggg atg ccc cga cag ctc ccg gac gcc
 gly gln pro thr ile ser ser ile gly ile asp gly met pro arg gln leu pro asp gly
 841/281
 tat cag acc gtc aat cga gcg gat gct gtc acc gat ctg atg ccg ccg ttg aag gtc gcg
 tyr gln thr val asn arg ala asp ala val ser asp leu met arg pro leu lys val ala
 901/301
 gtg gat gcg atc acc gtt gtg gcg gtc ttg ctg tgg atc gtt gcg gcg ttg atc gtc gcc
 val asp ala ile thr val val ala val leu leu trp ile val ala ala leu ile val gly
 961/321
 tgg gtg gtc taa ctc tct gcg ttg gag cgg ctg cgt gac ttt gcg gcg ttc aag gcg atc
 ser val val tyr leu ser ala leu glu arg leu arg asp phe ala val phe lys ala ile
 1021/341
 gcc gtg ccg acc cgc tgg att ctg gcc ggg ctg gcg ctg cag gcg gtc gtc gtc gcg ctg
 gly val pro thr arg ser ile leu ala gly leu ala leu gln ala val val val ala leu
 1081/361
 ctc gcg gcg gtc gtt gcc gcc atc ctt tgg ctg ctg ttg gcg ccg ttg ttc ccg atg acc
 leu ala ala val val gly gly ile leu ser leu leu leu ala pro leu phe pro met thr
 1141/381
 gtc gtg gta ccc ctg agt gcc ttc gtg gcg cta ccg gcg atc gcg acc gtc atc ggt ctg
 val val val pro leu ser ala phe val ala leu pro ala ile ala thr val ile gly leu
 1201/401
 ctg gcc acc gtc gca gga ctg cgg gcc gtg gtg gcg atc gat ccg gca cta gcg ttc gga
 leu ala ser val ala gly leu arg arg val val ala ile asp pro ala leu ala phe gly
 1261/421
 ggt ccc tag
 gly pro AMS

SEQ ID N° 8F

FEUILLE DE REMPLACEMENT (REGLE 26)

27/185

séquence de Rv0072 prédite par par Cole et al. (Nature 393:537-544) et
présentant plus de 77% de similarité avec SeqSD'

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1/1                               31/11
atg ctc ttc gcg gcc ctg cgt gac atg caa tgg aga aag cgc cgc ctg gtc atc aag atc
Met leu phe ala ala leu arg asp met gln trp arg lys arg arg leu val ile thr ile
61/21                               91/31
atc agc acc ggg ctg atc ttc ggg atg acg ctt gtt ttg acc gga ctc gcg aac ggc ttc
ile ser thr gly leu ile phe gly met thr leu val leu thr gly leu ala asn gly phe
121/41                               151/51
cgg gtg gag gcc cgg cac acc gtc gat tcc atg ggt gtc gat gta ttc gtc gtc aga tcc
arg val glu ala arg his thr val asp ser met gly val asp val phe val val arg ser
181/61                               211/71
ggc gct gct gga cct ttc ctg ggt tca ata cgg ttc ccc gat gtt gac ctg gcc cga gtg
gly ala ala gly pro phe leu gly ser ile pro phe pro asp val asp leu ala arg val
241/81                               271/91
gcc gct gaa ccc ggt gtc atg gcc gcg gcc cgg ttg ggc agc gtg ggg aag atc atg aaa
ala ala glu pro gly val met ala ala ala pro leu gly ser val gly thr ile met lys
301/101                               331/111
gaa gcc acg tcg acg cga aac gtc acg gtc ttc ggc gcg ccc gag cac gga cct gcc atg
glu gly thr ser thr arg asn val thr val phe gly ala pro glu his gly pro gly met
361/121                               391/131
cca cgg gtc tca gag ggt cgg tca cgg tcg aaa cgg gac gaa gtc gcg gca tcg agc acg
pro arg val ser glu gly arg ser pro ser lys pro asp glu val ala ala ser ser thr
421/141                               451/151
atg gcc cga cac ctc ggt gac act gtc gag gtc gcc ggc cgc aga ttg cgg gtc gtt ggc
met gly arg his leu gly asp thr val glu val gly ala arg arg leu arg val val gly
481/161                               511/171
att gtg cgg aat tcc acc gcg ctg gcc aag atc ccc aat gtc ttc ctc aag acc gag ggc
ile val pro asn ser thr ala leu ala lys ile pro asn val phe leu thr thr glu gly
541/181                               571/191
tta cag aaa ttg gcg tac aac ggg cag cgg aat atc cgg tcc atc ggg atc ata ggt atg
leu gln lys leu ala tyr asn gly gln pro asn ile thr ser ile gly ile ile gly met
601/201                               631/211
ccc cga cag ctg cgg gag ggt tac cag act ttc gat cgg gtg ggc gct gtc aat gat ttg
pro arg gln leu pro glu gly tyr gln thr phe asp arg val gly ala val asn asp leu
661/221                               691/231
gtg cgc cca ttg aag gtc gca gtg aat tcg atc tcg atc gtg gct gtt ttg ctg tgg att
val arg pro leu lys val ala val asn ser ile ser ile val ala val leu leu trp ile
721/241                               751/251
gtg gcg gtg ctg atc gtc gcc tcg gtg gtg tac ctt tcg gct ctt gag cgg cta agt gac
val ala val leu ile val gly ser val val tyr leu ser ala leu glu arg leu arg asp
781/261                               811/271
ttc ggg gtg ttc aag gcg att gcc aag cca acg cgc tcg att atg gcc ggg ctc gca tta
phe ala val phe lys ala ile gly thr pro thr arg ser ile met ala gly leu ala leu
841/281                               871/291
cag gcg ctg gtc att gcg ttg ctt gcg gcg gtc gtg ggc gtc gtc ctg gcg cag gtg ttg
gln ala leu val ile ala leu leu ala ala val val gly val val leu ala gln val leu
901/301                               931/311
gca cca ctg ttc cgg atg att gtc gcg gta ccc gtc ggt gct tac ctg gcg cta cgg gtg
ala pro leu phe pro met ile val ala val pro val gly ala tyr leu ala leu pro val
961/321                               991/331
gcc gcg atc gtc atc ggt ctg ttc gct agt gtt gcc gga ttg aag cgc gtg gtg aag gtc
ala ala ile val ile gly leu phe ala ser val ala gly leu lys arg val val thr val
1021/341
gat ccc gcg cag gcg ttc gga ggt ccc tag
asp pro ala gln ala phe gly gly pro AMS

```

SEQ ID N° 8G

FEUILLE DE REMPLACEMENT (REGLE 26)

28/185

Seq8H : ORF prédite par Cole et al. (Nature 393:537-544) et contenant seq8G
 1/1 31/11
 tag cct ctg gga atg ctc ttc gcg gcc ctg cgc gac atg caa tgg aga aag cgc cgc ctg
 AMS pro leu gly met leu phe ala ala leu arg asp met gln trp arg lys arg arg leu
 61/21 91/31
 gtc atc acg atc atc agc acc ggg ctg atc ttc ggg atg acg ctt gtt ttg acc gga ctc
 val ile thr ile ile ser thr gly leu ile phe gly met thr leu val leu thr gly leu
 121/41 151/51
 gcg aac ggc ttc cgg gtg gag gcc cgg cac acc gtc gat tcc atg ggt gtc gat gta ttc
 ala asn gly phe arg val glu ala arg his thr val asp ser met gly val asp val phe
 181/61 211/71
 gtc gtc aga tcc ggc gct gct gga cct ttc ctg ggt tcc ata cgc ttc ccc gat gtt gac
 val val arg ser gly ala ala gly pro phe leu gly ser ile pro phe pro asp val asp
 241/81 271/91
 ctg gcc cga gtg gcc gct gaa ccc ggt gtc atg gcc gcg gcc cgc ttg ggc agc gtg ggg
 leu ala arg val ala ala glu pro gly val met ala ala ala pro leu gly ser val gly
 301/101 331/111
 acg atc atg aaa gaa ggc acg tcg acg cga aac gtc acc gtc ttc ggc gcg ccc gag cac
 thr ile met lys glu gly thr ser thr arg asn val thr val phe gly ala pro glu his
 361/121 391/131
 gga cct ggc atg cca cgg gtc tca gag ggt cgg tca cgc tcg aaa cgc gac gaa gtc gcg
 gly pro gly met pro arg val ser glu gly arg ser pro ser lys pro asp glu val ala
 421/141 451/151
 gca tcg agc acg atg ggc cga cac ctc ggt gac act gtc gag gtc ggc gcg cgc aga ttg
 ala ser ser thr met gly arg his leu gly asp thr val glu val gly ala arg arg leu
 481/161 511/171
 cgg gtc gtt ggc att gtg cgg aat tcc acc gcg ctg gcc aag atc ccc aat gtc ttc ctc
 arg val val gly ile val pro asn ser thr ala leu ala lys ile pro asn val phe leu
 541/181 571/191
 acg acc gag ggc tta cag aaa ttg gcg tac aac ggg cag ccy aat atc acg tcc atc ggg
 thr thr glu gly leu gln lys leu ala tyr asn gly gln pro asn ile thr ser ile gly
 601/201 631/211
 atc ata ggt atg ccc cga cag ctg cgc gag ggt tac cag act ttc gat cgg gtg gcc gct
 ile ile gly met pro arg gln leu pro glu gly tyr gln thr phe asp arg val gly ala
 661/221 691/231
 gtc aat gat ttg gtg cgc cca ttg aag gtc gca gtc aat tcg atc tcg atc gtg gct gtt
 val asn asp leu val arg pro leu lys val ala val asn ser ile ser ile val ala val
 721/241 751/251
 ttg ctg tgg att gtg gcg gtg ctg atc gtc ggc tcg gtg gtg tac ctt tcg gct ctt gag
 leu leu trp ile val ala val leu ile val gly ser val val tyr leu ser ala leu glu
 781/261 811/271
 cgg cta cgt gac ttc gcg gtg ttc aag gcg att ggc acg cca acg cgc tcg att atg gcc
 arg leu arg asp phe ala val phe lys ala ile gly thr pro thr arg ser ile met ala
 841/281 871/291
 ggg ctc gca tta cag gcg ctg gtc att gcg ttg ctt gcg gcg gtg gtg ggc gtc gtc ctg
 gly leu ala leu gln ala leu val ile ala leu leu ala ala val val gly val val leu
 901/301 931/311
 gcg cag gtg ttg gca cca ctg ttc cgc atg att gtc gcg gta ccc gtc ggt gct tac ctg
 ala gln val leu ala pro leu phe pro met ile val ala val pro val gly ala tyr leu
 961/321 991/331
 gcg cta cag gtg gcc gcg atc gtc atc ggt ctg ttc gct agt gtt gcc gga atg aag cgc
 ala leu pro val ala ala ile val ile gly leu phe ala ser val ala gly leu lys arg
 1021/341 1051/351
 gtg gtg acg gtc gat ccc gcg cag gcg ttc gga ggt ccc tag
 val val thr val asp pro ala gln ala phe gly gly pro AMS

SEQ ID N° 8H

29/185

31/11
 CGA GGC CGA GCG AAC CGT CGA TTC CAT GGG TGT CGA CGC ATT COT GGT CAA GGC CCG CGC
 arg gly arg ala asn arg arg phe his gly cys arg arg ile arg gly gln gly arg arg
 61/21
 GGC AGG ACC GTT CCT GGG TTC GAC ACC ATT CGC CCA AAT CGA CCT GCC CCA GGT TGC TCG
 gly arg thr val pro gly phe asp thr ile arg pro asn arg pro ala pro gly cys ser
 121/41
 TGC GGC TGG CGT CTT GGC TGC CGC CCC ACT AGC GAC TGC GGC GTC GAC GAT CCG GCA GCG
 cys ala trp arg leu gly cys arg pro thr ser asp cys ala val asp asp pro ala gly
 181/61
 CAC GTC AGC GCG AAA CGT CAC CGC GTT CGG GGC ACC AGA GCA CCG ACC CCG CAT GCC CGC
 his val ser ala lys arg his arg val arg gly thr arg ala arg thr arg his ala ala
 241/81
 GGT CTC GGA CCG TCG GGC GCC ATC GAC GCC CGA CGA GGT CGC GGT GTC GAG CAC GGT GCG
 gly leu gly arg ser gly ala ile asp ala gly arg gly arg gly val glu his ala gly
 301/101
 CCG AAA CCT CCG CGA CGA TC
 pro lys pro arg arg arg

SEQ ID N° 9A

FIGURE 9A

32/11
 GAG GCC GAG CGA ACC GTC GAT TCC ATG GGT GTC GAC GCA TTC GTG GTC AAG GCC GGC CGC
 glu ala glu arg thr val asp ser met gly val asp ala phe val val lys ala gly ala
 62/21
 GCA GGA CCG TTC CTC GGT TCG ACA CCA TTC GCC CAA ATC GAC CTC CCC GAG GGT GGT CGT
 ala gly pro phe leu gly ser thr pro phe ala gln ile asp leu pro gln val ala arg
 122/41
 GCG CCT GGC GTC TTG GGT GGC GCC CCA CTA CGC ACT GCG CCG TCG AGC ATC CCG CAG GCG
 ala pro gly val leu ala ala ala pro leu ala thr ala pro ser thr ile arg gln gly
 182/61
 ACG TCA GCG CCA AAC GTC ACC GCG TTC GGG CGA CCA GAG CAC GGA CCC GGC ATG CCG CGC
 thr ser ala arg asn val thr ala phe gly ala pro glu his gly pro gly met pro arg
 242/81
 GTC TCG GAC GGT CCG GCG CCA TCG AGC CCG GAC GAG GTC GCG GTG TCG AGC ACC CTC GCG
 val ser asp gly arg ala pro ser thr pro asp glu val ala val ser ser thr leu gly
 302/101
 CGA AAC CTC GGC GAC GAT C
 arg asn leu gly asp asp

SEQ ID N° 9B

FIGURE 9B

30/185

33/11
 AGG CCG AGC GAA CCG TCG ATT CCA TGG GTG TCG ACC CAT TCG TGG TCA AGG CCG GCG CCG
 arg pro ser glu pro ser ile pro trp val ser thr his ser trp ser arg pro ala arg
 63/21
 CAG GAC CGT TCC TGG GTT CGA CAC CAT TCG CCC AAA TCG ACC TGC CCC AGG TTG CTC GTG
 gln asp arg ser trp val arg his his ser pro lys ser thr cys pro arg leu leu val
 123/41
 CGC CTG GCG TCT TGG CTG CCG CCC CAC TAG CGA CTG CCC CGT CGA CGA TCC GGC AGG GCA
 arg leu ala ser trp leu pro pro his AMB arg leu arg arg arg arg ser gly arg ala
 183/61
 CGT CAG CCG GAA ACC TCA CCG CGT TCG GGG CAC CAG AGC ACC GAC CCG GCA TGC CCG GCG
 arg gln arg glu thr ser pro arg ser gly his gln ser thr asp pro ala cys arg gly
 243/81
 TCT CGG ACC CTC GGG CCG CAT CCA CCG CCG ACC AGG TCG CCG TGT CGA GCA CCG TGG GCG
 ser arg thr val gly arg his arg arg arg thr arg ser arg cys arg ala arg trp ala
 303/101
 GAA ACC TCG GCG ACC ATC
 glu thr, ser ala thr ile

SEQ ID N° 9C

FIGURE 9C

31/11
 TTA ACC ACT CAG ACC GAA ACC CTT GAA CCG CGA GGT CCG TCC GGA CAC CAA TTT GAC TCG
 leu thr thr gln thr glu thr leu glu pro arg gly arg ser gly his gln phe asp ser
 61/21
 GCT CTT TGG CAA TTG AAG GTG ACC TCG GAG CAG CCG GGT GAC CCG ATC GTT GCG CTT GCG
 ala leu trp gln leu lys val ser cys glu gln pro gly asp arg ile val gly leu ala
 121/41
 ATC AAT CCG CCG CTC GCG GAC GTA GAT AAT CAG CTC ACC GTT GGG ACC GAC CTC GAC CAG
 ile asn arg arg leu ala asp val asp asn gln leu thr val gly thr asp leu asp gln
 181/61
 GCG TCC TTT GTG ACT GCG GGG CTT GAC GCG GAC GAC CAC AGA GTC GGT CAT CCG CTA AGC
 gly ser phe val thr ala gly leu asp ala asp asp his arg val gly his arg leu arg
 241/81
 CTA CCG TTC TGA CCT GGG GCT GCG TGG CCG CCG ACC ACC TGA GGC ACC TCA TGT CTC AGC
 leu pro phe GFA pro gly ala ala trp ala pro thr thr GFA gly thr ser cys leu ser
 301/101
 GGC CCA CCG CCA CCT CCG TCG CCG GCA GTA TGT CAG CAT GTG CAG ATG ACT CCA CCG ACC
 gly pro pro pro pro arg ser pro ala val cys gln his val gln met thr pro arg ser
 361/121
 CTT GTT CCG ATC GTT GGT GTC GTG GTT GCG ACC ACC TTG GCG CTC GTG ACC GCA CCC GCG
 leu val arg ile val gly val val val ala thr thr leu ala leu val ser ala pro ala
 421/141
 GCG GGT CGT GCG GCG CAT GCG GAT C
 gly gly arg ala ala his ala asp

SEQ ID N° 10A

FIGURE 10A

31/185

32/11
TAA CGA CTC AGA CGG AAA CCG TTG AAC CCG GAG GTC GCT CCG GAC ACC AAT TTG ACT CGG
OCH arg leu arg arg lys arg leu asn arg glu val ala pro asp thr asn leu thr arg
62/21
CTC TTT GGC AAT TGA AGG TGA GCT GCG AGC AGC CGG GTG ACC GCA TCG TTG GCC TTG CCA
leu phe gly asn OPA arg OPA ala ala ser ser arg val thr ala ser leu ala leu pro
122/41
TCA ATC GGC GGC TCG CCG ACG TAG ATA ATC AGC TCA CCG TTG GGA CCG ACC TCG ACC AGG
ser ile ala gly ser arg thr AMB ile ile ser ser pro leu gly pro thr ser thr arg
182/61
GGT CCT TTG TGA CTG CCG GGC TTG ACG CCG ACG ACC ACA GAG TCG GTC ATC GCC TAA GGC
gly pro leu OPA leu pro gly leu thr arg thr thr thr glu ser val ile ala OCH gly
242/81
TAC CGT TCT GAC CTG GGG CTG CGT GGG CCG CGA CGA CGT GAG GCA CGT CAT GTC TCA GCG
tyc arg ser asp leu gly leu arg gly arg arg arg arg glu ala arg his val ser ala
302/101
GCC CAC CGC GAC CTC GGT CCG CCG CAG TAT GTC AGC ATG TGC AGA TGA CTC CAC GCA GCC
ala his arg his leu gly arg arg gln tyr val ser met cys arg OPA leu his ala ala
362/121
TTG TTC GCA TCG TTG GTG TCG TCG TTG CGA CGA CCT TCG CCG TCG TCA GCG CAC CCG CCG
leu phe ala ser leu val ser trp leu arg arg pro trp arg trp OPA ala his pro pro
422/141
CGG GTC GTG CCG CCG ATG CCG ATC
ala val val pro arg met arg ile

SEQ ID N° 10B

FIGURE 10B

33/11
AAC GAC TCA GAC GGA AAC GCT TGA ACC GCG AGG TCG CTC CCG ACA CCA ATT TGA CTC GCG
asn asp ser asp gly asn ala OPA thr ala arg ser leu arg thr pro ile OPA leu gly
63/21
TCT TTG GCA ATT GAA GGT GAG CTG CGA GCA GCC GGG TGA CCG CAT CGT TCG CCT TCG CAT
ser leu ala ile glu gly glu leu arg ala ala gly OPA pro his arg trp pro cys his
123/41
CAA TCG CCG GCT CCG GGA CGT AGA TAA TCA GCT CAC CGT TCG GAC UGA CCT CGA CCA GCG
gln ser pro ala arg gly arg arg OCH ser ala his arg trp asp arg pro arg pro gly
183/61
GTC CTT TGT GAC TGC CCG GCT TGA CCG GGA CGA CCA CAG AGT CCG TCA TCG CCT AAG GCT
val leu cys asp cys arg ala OPA arg gly arg pro gln ser arg ser ser pro lys ala
243/81
ACC GTT CTG ACC TCG GCG TCG GTG GCG GCC GAC GAC GTG AGG CAC GTC ATG TCT CAG CCG
thr val leu thr trp gly cys val gly ala asp asp val arg his val met ser gln arg
303/101
CCC ACC GCG ACC TCG GTC GCG GCG AGT ATG TCA GCA TGT GCA GAT GAC TCG ACC CAG CCT
pro thr ala thr ser val ala gly ser met ser ala cys ala asp asp ser thr gln pro
363/121
TGT TCG CAT CGT TCG TGT CGT GGT TGC CAC CAC CTT GCG GCT GGT GAG CCG ACC CCG CCG
cys ser his arg trp cys arg gly cys asp asp leu gly ala gly glu arg thr arg arg
423/141
CGG TCG TCG CCG GCA TCG GGA TC
arg ser cys arg ala cys gly

SEQ ID N° 10C

FIGURE 10C

FEUILLE DE REMPLACEMENT (REGLE 26)

32/185

31/11
 CCC GAA GAG CTC CCC CGT TTT GTT AAT TTT TAA AAA ATT TGT GTC ACA AAC CGG GGT ACC
 pro glu glu val pro arg phe val asp phe OCH lys ile cys val thr lys arg gly thr
 81/21
 AAG GCA TAA AAC CTA GTA CCT GGG GCG GCG GAT TCA ACG AAA ACC GAG TGG GGG TAG TCA
 lys ala OCH asn leu val pro gly ala ala asp ser thr lys thr glu trp gly AMB ser
 121/41
 GGG GCG TGC ATT CCG ACG ACC CTS TAC GAC CCG CTG GTG GUA ACG CCG ATG AGT GCG CCG
 gly ala cys ile pro thr thr leu tyr asp pro leu val ala thr pro met ser ala pro
 181/61
 ACG AAG GCG GAG CGA CCG GCT GCG GCG GCT GAC CCG CCG GGA ACC CCG CGA GTG CAT GGT
 thr lys ala glu arg arg ala ala gly ala asp arg arg gly ser arg arg val asp gly
 241/81
 CAC CAC CCG CAC CCG ACC GGT ACG GAT CCG GCG TCG GGT TAC CBT CCG CGT CAA CCG
 his his arg pro his pro thr gly thr asp arg ala ser gly tyr arg arg arg gln arg
 301/101
 GCT GGA CAG CAT CCG TCC CCG CTS GGT CAA TCC ACT CAT GCA GCG CCG CAA CGA ACA GCT
 ala gly gln his arg ser pro leu gly gln cys thr his ala ala pro gln arg thr ala
 361/121
 CAA CCC TTG AAC CCG GTC CCG GCG TGC CGA CCC TCG GCG GCG GCG GTG CCG CTA CGT GAT
 gln pro leu asn arg val pro ala cys arg pro ser ala ala gly val pro leu arg asp
 421/141
 AGA CAC AAG GCG ATG GAA ATC CTG GCG ACG CCG ATG CTA CTT CCG CCG GCG GAC TAT CAG
 arg his arg ala met glu ile leu ala ser arg met leu leu arg pro ala asp tyr gln
 481/161
 CCG TCG CTG ACC TTC TAC GGT GAC CAG ATC
 arg ser leu ser phe tyr arg asp gln ile

SEQ ID N° 11A

FIGURE 11A

32/11
 CCG AAG AAG TCC CCC GGT TTG TTA ATT TTT AAA AAA TTT GTG TCA CAA ACG GGG GTA CCA
 pro lys arg ser pro val leu leu ile phe lys lys phe val ser gln ser gly val pro
 82/21
 AAG CAT AAA ACC TAG TAC CTG GCG GCG GCG ACT CAA CGA AAA CCG AGT GCG GGT AGT CAG
 arg his lys thr AMB tyr leu gly arg arg ile gln arg lys pro ser gly gly ser gln
 122/41
 GGG GGT GCA TTT CGA CGA CCG TGT ACG ACC CCG TCG TCG CAA CCG CGA TGA GTG CCG CGA
 gly arg ala phe arg arg pro cys thr thr arg trp trp gln arg arg GFA val arg arg
 182/61
 CGA AAG CCG ACC GAC GGG CTG CCG GCG CTG ACC GCG CCG GAA GCG GCG GAG TGG ATG GTC
 arg arg pro ser asp gly leu pro ala leu thr ala ala glu ala ala glu trp met val
 242/81
 ACC ACC GCG CCG ACC CGA CCG GTA CCG ATC GCG CCT CCG GTT ACC GTC GCG GTC ACC GCG
 thr thr ala arg thr arg pro val arg ile ala pro arg val thr val ala val asn ala
 302/101
 CTG GAC ACC ATC GGT CCG CCG TCG GTC AAT GCA CTC ATC CAG CCG CCG AAC GAA CAG CTC
 leu asp ser ile gly pro arg trp val asn ala leu met gln arg arg asn glu gln leu
 362/121
 AAC CCT TGA ACC GGG TCC CCG CCT GCG GAC CCT CCG CCG CCG GCG TCG CCG TAC GTC ATA
 asn pro GFA thr gly ser arg pro ala asp pro arg pro pro ala cys arg tyr val ile
 422/141
 GAC ACA GGG CGA TGG AAA TCC TGG CGA GCG GGA TCG TAC TTC GCG CCG CCG ACT ATC ACC
 asp thr gly pro trp lys ser trp pro ala gly cys tyr phe gly arg arg thr ile ser
 482/161
 GGT CCG TGA GCT TCT ACC GTG ACC AGA TC
 gly arg GFA ala ser thr val thr arg

SEQ ID N° 11B

FIGURE 11B

FEUILLE DE REMPLACEMENT (REGLE 26)

33/185

33/11

CGA AGA GGT CCC CCG TTT TGT TAA TTT TTA AAA AAT TTG TGT CAC AAA GCG GGG TAC CAA
 arg arg gly pro pro phe cys OCH phe leu lys asn leu cys his lys ala gly tyr gln
 63/21 93/31

GGC ATA AAA CCT AST ACC TGG GGC GGC GGA TTC AAC GAA AAC CGA GTG GGG GTA CTC AGG
 gly ile lys pro ser thr trp gly gly gly phe asn glu asn arg val gly val val arg
 123/41 153/51

GGC GTG CAT TCC GAC GAC CCT GTA CGA CCC GCT GGT GGC AAC GCC GAT GAG TGC GCC GAC
 gly val his ser asp asp pro val arg pro ala gly gly asn ala asp glu cys ala asp
 183/61 213/71

GAA GGC CGA GCG ACG GGC TGC CCG CGC TGA CCG CCG CCG AAG CCG CCG AGT GGA TGG TCA
 glu gly arg ala thr gly cys arg arg OPA pro pro arg lys pro pro ser gly trp ser
 243/81 273/91

CCA CCG CCC GCA CCC GAC CCG TAC GGA TCG CCC CTC GGG TTA CCG TCG CCG TCA ACG CCG
 pro pro pro ala pro asp arg tyr gly ser arg leu gly leu pro ser pro ser thr arg
 303/101 333/111

TGG ACA GCA TCG GTC CCC GCT GGG TCA ATG CAC TCA TGC AGC GCC GCA ACG AAC AGC TCA
 trp thr ala ser val pro ala gly ser met his ser cys ser ala ala thr asn ser ser
 363/121 393/131

ACC CTT GAA CCG GGT CCC GGC CTG CCG ACC CTC GGC CCG CCG COT GCC GCT ACG TGA TAG
 thr leu glu pro gly pro gly leu pro thr leu gly arg arg arg ala ala thr OPA AMB
 423/141 453/151

ACA CAG GGC CAT GGA AAT CCT GGC CAG CCG GAT GCT ACT TCG GCC GGC GGA CTA TCA GCG
 thr gln gly his gly asn pro gly gln pro asp ala thr ser ala gly gly leu ser ala
 483/161

GTC GCT GAG CTT CTA CCG TGA CCA GAT C
 val ala glu leu leu pro OPA pro asp

SEQ ID N° 11C

FIGURE 11C

partie de la séquence nucléotidique de Seq11

1/1 31/11

CGT CGC CGT CAA CCG GCT GGA CAG CAT CCG TCC CCG CTG GGT CAA TGC ACT CAT GCA GCG
 arg arg arg gln arg ala gly gln his arg ser pro leu gly gln cys thr his ala ala
 61/21 91/31

CCG CAA CGA ACA GCT CAA CCC TTG AAC CCG GTC CCG GCC TGC CGA CCC TCG GCC GCC GCG
 pro gln arg thr ala gln pro leu asn arg val pro ala cys arg pro ser ala ala gly
 121/41 151/51

CTG CCG CTA CGT GAT AGA CAC AGG GCC ATG GAA ATC CTG GCC AGC CCG ATG CTA CTT CCG
 val pro leu arg asp arg his arg ala met glu ile leu ala ser arg met leu leu arg
 181/61 211/71

CCG GCG GAC TAT CAG CCG TCG CTG AGC TTC TAC COT GAC CAG ATC
 pro ala asp tyr gln arg ser leu ser phe tyr arg asp gln ile

SEQ ID N° 11A'

FIGURE 11A'

34/185

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1/1                               31/11
GTC GGC GTC AAC GCG CTG GAC AAC ATC GGT CCC GCG TGG GTC AAT GCA CTC ATG CAG CCG
val ala val asn ala leu asp ser ile gly pro arg trp val asn ala leu met gln arg
51/21                               91/31
CGC AAC GAA CAG CTC AAC CCT TGA ACC GGG TCC CGG CCT GGC GAC CCT CGG CCG CCG GCG
arg asn glu gln leu asn pro GPA thr gly ser arg pro ala asp pro arg pro pro ala
121/41                               151/51
TGC CGC TAC GTG ATA GAC ACA GGG CCA TGG AAT TCC TGG CCA GCG GGA TGC TAC TTC GGC
cys arg tyr val ile asp thr gly pro trp lys ser trp pro ala gly cys tyr phe gly
181/61                               211/71
CGG CCG ACT ATC ACC GGT CCG TGA GCT TCT ACC GTG ACC AGA TC
arg arg thr ile ser gly arg GPA ala ser thr val thr arg

```

SEQ ID N° 11B'

FIGURE 11B'

```

1/1                               31/11
TGG CCG TCA ACG CCG TGG ACA GCA TGG CTC CCC GGT GCG TCA ATG CAG TCA TGC AGC GCG
ser pro ser thr arg trp thr ala ser val pro ala gly ser met his ser cys ser ala
51/21                               91/31
GCA ACG AAC AGC TCA ACC CTT GAA CCG GGT CCC GCG CTC CCG ACC CTC GGC CCG CCG COT
ala thr asn ser ser thr leu glu pro gly pro gly leu pro thr leu gly arg arg arg
121/41                               151/51
GGC GGT ACG TGA TAG ACA CAG GGC CAT GGA AAT CCT GGC CAG CCG GAT GGT ACT TCG GCG
ala ala thr GPA AMB thr gln gly his gly asn pro gly gln pro asp ala thr ser ala
181/61                               211/71
GGC GGA CTA TCA GCG GTC GGT GAG CTT CTA CCG TGA CCA GAT C
gly gly leu ser ala val ala glu leu leu pro GPA pro asp

```

SEQ ID N° 11C'

FIGURE 11C'

séquence P03460 prédite par par Cole et al. (Nature 393:537-544) et contenant Seq11A'

```

1/1                               31/11
atg gaa atc ctg gcc agc cgg atg cta ctt cgg ccg gcg gac tat cag cgg tgg ctg agc
Met glu ile leu ala ser arg met leu leu arg pro ala asp tyr gln arg ser leu ser
51/21                               91/31
ttc tac cgt gac cag atc ggg ctg ggg att gcc cgt gaa tac ggg gcc ggc aca gtg ttt
phe tyr arg asp gln ile gly leu ala ile ala arg glu tyr gly ala gly thr val phe
121/41                               151/51
ttc gcc ggt cag tca ctg atc gaa ctg gcc ggt tac gcc gag cgg gac cat ccg cgg gga
phe ala gly gln ser leu leu glu leu ala gly tyr gly glu pro asp his ser arg gly
181/61                               211/71
ccr ttt ccc gcc ggg ctg tgg ctg cag gty cgg gac ctc gag ggt acc cag acc gag ctg
pro phe pro gly ala leu trp leu gln val arg asp leu glu ala thr gln thr glu leu
241/81                               271/91
gtc agc cga gcc gty tog atc got cgc gag ccc cgc cgc gaa ccg tgg gcc ctg cac gag
val ser arg gly val ser ile ala arg glu pro arg arg glu pro trp gly leu his glc
301/101                               331/111
atg cat gtg acc gac cca gac ggg atc aca ctg ata ttc gtc gag gtt ccc gag ggt cac
met his val thr asp pro asp gly ile thr leu ile phe val glu val pro glu gly his
361/121
ccg ctg cgt aca gac acc cgg gcc tga
pro leu arg thr asp thr arg ala GPA

```

SEQ ID N° 11D

35/185

ORF prédite par par Cole et al. (Nature 393:537-544) et contenant Rv0546c

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1/1                               31/11
tag tca ggg cgt gca ttc gac gac gct gta cta ecc gct ggt ggc aac tcc gat gat tgc
AMB ser gly arg ala phe asp asp ala val leu pro ala gly gly asn ser asp asp cys
61/21                               91/31
gcc gac gaa ggc cta cga cgg gct gcc ggc gct gac cgc cgc gga agc cgc cga gtg gat
ala asp glu gly leu arg arg ala ala gly ala asp arg arg gly ser arg arg val asp
121/41                               151/51
ggt cac cgc cgc ccg cac ccg acc ggt ggc gat cgc gcc tgc ggt tgc cgt cgc cgt caa
gly his arg arg pro his pro thr gly ala asp arg ala ser gly cys arg arg arg gln
181/61                               211/71
cgc gct gga cag cat cgg tcc ccg ctg ggt caa tgc act cat gca gcg ccg caa cga aca
arg ala gly gln his arg ser pro leu gly gln cys thr his ala ala pro gln arg thr
241/81                               271/91
gct caa ccc ttg aac cgg gtc ccg gcc tgc cga ccc tgc gcc gcc ggc gtg ccg cta cgt
ala gln pro leu asn arg val pro ala cys arg pro ser ala ala gly val pro leu arg
301/101                               331/111
gat aga cac agg gcc atg gaa atc ctg gcc agc agg atg cta ctt cgg ccg gcc gac tat
asp arg his arg ala met glu ile leu ala ser arg met leu leu arg pro ala asp tyr
361/121                               391/131
cag cgg tag ctg agc ttc tac cgt gac cag atc ggg ctg gcc att gcc cgt gaa tac gag
gln arg ser leu ser phe tyr arg asp gln ile gly leu ala ile ala arg glu tyr gly
421/141                               451/151
gcc gcc aca gtg ttc ttc gcc ggt cag tca ctg etc gaa ctg gcc ggt tac gcc gag ccg
ala gly thr val phe phe ala gly gln ser leu leu glu leu ala gly tyr gly glu pro
481/161                               511/171
gac cat tgc cgg gga cct ttt ccc gcc gcc ctg tgg ctg cag gtg cgc gac ctc gag gct
asp his ser arg gly pro phe pro gly ala leu trp leu gln val arg asp leu glu ala
541/181                               571/191
acc cag acc gag ctg gtc agc cga gcc gtg tgc atc cct agc gag ccc agc cgc gaa ccg
thr gln thr glu leu val ser arg gly val ser ile ala arg glu pro arg arg glu pro
601/201                               631/211
tgg gcc ctg cac gag atg cat gtg acc gac cca gac ggg atc aca ctg ata ttc gtc gag
trp gly leu his glu met his val thr asp pro asp gly ile thr leu ile phe val gln
661/221                               691/231
gtt ccc gag ggt cac ccg ctg cgt aca gac acc cgg gcc tga
val pro glu gly his pro leu arg thr asp thr arg ala CEA

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SEQ ID N° 11F

FIGURE 11F

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1/1                               31/11
gac cga agg gat ttc ggg act aac tgg gcc tgt aag gca acg cga ggt att cat gcc gag
asp arg arg asp phe ala thr asn ser ala cys lys ala thr arg gly leu his ala glu
61/21                               91/31
gac gta gac agg aag aga cag gga agc tga tga cgt cgc gta ccg gac cgc cat tct gtc
asp val asp arg lys arg gln gly ser opa opa arg arg val pro asp arg his ser val
121/41                               151/51
gag tct ttc cga gtt cag caa caa tgg aca cag aag cgg gga cca gac cgg gag gac gac
glu ser phe arg val gln gln gln ser thr gln lys arg gly pro asp arg glu asp asp
181/61                               211/71
ggg gcc cgg gcc gat tgg ggc cga ggg tct gag taa gac cag agt cac ggg tcc ggg tgt
ala ala arg ala ala ser gly arg val ser glu och asp gln ser his gly ser val cys
241/81                               271/91
gac aac cgc ggc gaa ttc aat cgg atg ggc ggc ggg acc gga ttg cgc cgg tca ccg agg
asp asn arg ala glu phe asn arg met ala gly gly thr gly leu arg arg ser pro arg
301/101
aac ctg cgg agt gat c
asn leu arg ser asp

```

SEQ ID N° 12A

FIGURE 12A

```

1/1                               31/11
acc gaa ggg att tgg cga cta act cgg cct gta agg aaa cgc gag gtc ttc atg ccg agg
thr glu gly ile ser arg leu thr arg pro val arg gln arg glu val phe met pro arg
61/21                               91/31
acg tag aca gga aga gac agg gaa gct gat gac gtc ggg tac cgg acc gcc att ctg tgg
thr AMB thr gly arg asp arg glu ala asp asp val ala tyr arg thr ala ile leu ser
121/41                               151/51
agt ctt tcc gag ttc agc aac aat cga cac aga agc ggg gac cag acc ggg agg acg acc
ser leu ser glu phe ser asn asn arg his arg ser gly asp gln thr gly arg thr thr
181/61                               211/71
cgg ccc ggg cgg ctt cgg gcc gag tgt ctg agt aag acc aga gtc acg ggt ccg tgt gtc
arg pro gly pro leu arg ala glu cys leu ser lys thr arg val thr gly pro cys val
241/81                               271/91
aca acc ggc cgg aat tca atc gga tgg cgg ggc gga ccg gat tgc gcc ggt cac cga gga
thr thr ala arg asn ser ile gly trp arg ala gly pro asp cys ala gly his arg gly
301/101
acc tcc gga gtc aac
thr ser gly val ile

```

SEQ ID N° 12B

FIGURE 12B

37/185

```

1/1      31/11
cag aag gga ttt cgc gac taa ctc ggc ctg taa ggc aac ggc agg tct tca tgc cga gga
pro lys gly phe arg asp och leu gly leu och gly asn ala arg ser ser cys arg gly
61/21
cgt aga cag gaa gag aca ggg aag ctg atg aag tgc cgt acc gga cag cca ttc cgt cga
arg arg gln glu glu thr gly lys leu met thr ser arg thr gly pro pro phe cys arg
121/41
gtc ttt cag agt tca gra aca atc gac aca gaa gcg ggg acc aga cag gga gga cga cgc
val phe pro ser ser ala thr ile asp thr glu ala gly thr arg pro gly gly arg arg
181/61
ggc cag ggc cgc ttc ggg cag agt gtc tga gra aga cca gag tca cag gtc cgt gtg tga
gly pro gly arg phe gly pro ser val oga val arg pro glu ser arg val arg val oga
241/81
caa cag cgc gga att caa tgc gat ggc ggg cgg gac cgg att cgc cag gtc acc gag gaa
gln pro arg gly ile gln ser asp gly gly arg asp arg ile ala pro val thr glu glu
301/101
cct cag gag tga tc
pro pro glu oga

```

SEQ ID N° 12C

FIGURE 12C

```

1/1      31/11
ggg att tgc ttg ccc gat oga ttg ttt gta cgg ttt cgg aaa aac act tga act cct ttt
gly ile ser leu pro asp gly leu phe val arg phe gly lys asn thr oga ser pro phe
61/21
tat tgg caa tgc tgc aaa tgg aca ttc cra tat tgc cgg aat taa ccc aac acc gtg acc
tyr trp gln cys trp lys trp thr phe gln tyr cys ala asn och pro asn thr val arg
121/41
ggg cgg caa cgg ttt gta cgg ggc cca oga acc gcc cgc gac cgg ttg acc gaa gcc acc
gly gly gln ala phe val pro gly pro ala ser ala ala asp arg leu thr glu ala ser
181/61
atg ttg ttg tgt cag cgc cgg ctt ggt ctc gat gtc cgc gcc ttg ggt oga ccc gct tct
met leu leu cys gln arg gly leu gly leu asp val pro ala leu ala gly pro ala ser
241/81
tca aaa cag gtt gaa ctt aac gac tca aca acc gaa acc ctt gaa cgg cga cgt cgc tcc
ser lys gln val glu leu asn asp ser arg thr glu thr leu glu pro arg arg arg ser
301/101
gaa cac caa ttt gac tgc gct ctt tgc caa ttg aag gtc acc tgc gag cag cgg ggt gac
gly his gln phe asp ser ala leu trp gln leu lys val ser cys glu gln pro gly asp
361/121
cgc atc gtt gcc ctt gcc atc aat cgc cgg ctc gcc gac gta gat aat cag ctc acc gtt
arg ile val gly leu ala ile asn arg arg leu ala asp val asp asn gln leu thr val
421/141
ggg acc gac ctc gac cag ggc tgc ttt gtc act gcc ggg ctt gac gcc gac gac cac aga
gly thr asp leu asp gln gly ser phe val thr ala gly leu asp ala asp asp his arg
481/161
gtc ggt cat cgc cta agg cta cgc ttc tga cct cgg gct gcc tgc gcc cgg acc acc tga
val gly his arg leu arg leu pro phe oga pro gly ala ala trp ala pro thr thr oga
541/181
ggc acc tca tct ctc acc gcc cca ccc cca cct cgg tgc cgc oga gta tct cag cat ctc
gly thr ser cys leu ser gly pro pro pro pro arg ser pro ala val cys gln his val
601/201
cag atg act cca cgc acc ctt gtt cgc atc gtt cgt gtc gtc gtt cgc acc acc ttg gcc
gln met thr pro arg ser leu val arg ile val gly val val val ala thr thr leu ala
661/221
ctg ctg acc oca ccc gcc ggc ggt cgt gcc gcc cat gcc gat c
leu val ser ala pro ala gly gly arg ala ala his ala asp

```

SEQ ID N° 13A

FIGURE 13A

FEUILLE DE REMPLACEMENT (REGLE 26)

38/185

32/11
 GGA TTT COT TGC CCG ATG GAT TGT TTG TAC GGT TTG GGA AAA ACA CTT GAA GTC CTT TTT
 gly phe arg cys pro met asp cys leu tyr gly leu gly lys thr leu glu val leu phe
 62/21
 ATT GGC AAT GCT GGA AAT GGA CAT TCC AAT ATT GCG CGA ATT AAC CGA ACA CCG TGA CCG
 ile gly asn ala gly asn gly his ser asn ile ala arg ile asn arg thr arg OPA gly
 122/41
 GGG GGC AAG COT TTG TAC CCG GGC CAG CAA GCG CCG CCG ACC GGT TGA CCG AAG CCA GCA
 gly gly lys arg leu tyr arg gly gln gln ala pro pro thr gly OPA pro lys pro ala
 162/61
 TGT TGT TGT GTC AGC GCG GGC TTG GTC TCG ATG TCC CCG CCT TGG CTG GAC CCG CTT CTT
 cys cys cys val ser ala gly leu val ser met ser arg pro trp leu asp pro leu leu
 242/81
 CAA AAC AGG TTG AAC TTA ACG ACT CAA GAA CCG AAA CCG TTG AAC CCG GAC GTC GGT CCG
 gln asn arg leu asn leu thr thr gln glu arg lys arg leu asn arg asp val ala pro
 302/101
 GAC ACC AAT TTG ACT CCG CTC TTT GGC AAT TGA AGG TGA GCT GCG AGC AGC CCG GTG ACC
 asp thr asn leu thr arg leu phe gly asn OPA arg OPA ala ala ser ser arg val thr
 362/121
 GCA TCG TTG GCG TTG CCA TCA ATC GCC GGC TCG CCG ACG TAG ATA ATC AGC TCA CCG TTC
 ala ser leu ala leu pro ser ile ala gly ser arg thr AMB ile ile ser ser pro leu
 422/141
 GGA CCG ACC TCG ACC AGG GGT CCT TTG TGA CTG CCG GCG TTG ACG CCG ACG ACC ACA GAG
 gly pro thr ser thr arg gly pro leu OPA leu pro gly leu thr arg thr thr thr glu
 482/161
 TCG GTC ATC GCG TAA GGC TAC GGT TCT GAC CTG GGG CTG CGT GCG CCG CGA CGA CGT GAG
 ser val ile ala CCH gly tyr arg ser asp leu gly leu arg gly arg arg arg arg glu
 542/181
 GCA CGT CAT GTC TCA GCG GCC CAC CCG CAC CTC GGT CCG CCG CAG TAT GTC AGC ATG TGC
 ala arg his val ser ala ala his arg his leu gly arg arg gln tyr val ser met cys
 602/201
 AGA TGA CTC CAC GCA GCC TTG TTC GCA TCG TTG GTG TCG TGG TTG CGA CGA CCT TGG CCG
 arg OPA leu his ala ala leu phe ala ser leu val ser trp leu arg arg pro trp arg
 662/221
 TGG TGA GCG CAC CCG CCG GCG GTC GTG CCG GCG ATG CCG ATC
 trp OPA ala his pro pro ala val val pro arg met arg ile

SEQ ID N° 13B

FIGURE 13B

39/185

33/11
 GAT TTC GTT GCC CGA TGG ATT GTT TGT ACG GTT TGG GAA AAA CAC TTG AAG TCC TTT TTA
 asp phe val ala arg trp ile val cys thr val trp glu lys his leu lys ser phe leu
 63/21
 TTG GCA ATG CTS GAA ATG GAC ATT CCA ATA TTG CGC GAA TTA ACC GAA CAC GGT GAG GGG
 leu ala met leu glu met asp ile pro ile leu arg glu leu thr glu his gly glu gly
 123/41
 GGG GCA AGC GTT TGT ACC GGG GCC AGC AAG CGC CGC CGA CCG GTT GAC CGA AGC CAG CAT
 gly ala ser val cys thr gly ala ser lys arg arg arg pro val asp arg ser gln his
 183/61
 GTT GTT GTG TCA GCG CGG GCT TGG TCT CGA TGT CCC GGC CTT GGC TGG ACC CGC TTC TTC
 val val val ser ala arg ala trp ser arg cys pro gly leu gly trp thr arg phe phe
 243/81
 AAA ACA GGT TGA ACT TAA CGA CTC AAG AAC GGA AAC GCT TGA ACC GCG ACC TCG CTC CCG
 lys thr gly GPA thr GCH arg leu lys asn gly asn ala GPA thr ala thr ser leu arg
 303/101
 ACA CCA ATT TGA CTC GGC TCT TTG GCA ATT GAA GGT GAC CTC CGA GCA GCC GGG TGA CCG
 thr pro ile GPA leu gly ser leu ala ile glu gly glu leu arg ala ala gly GPA pro
 363/121
 CAT CGT TGG CCT TGC CAT CAA TCG CCG GCT CGC GGA CGT AGA TAA TCA GCT CAC CGT TGG
 his arg trp pro cys his gln ser pro ala arg gly arg arg GCH ser ala his arg trp
 423/141
 GAC CGA CCT CGA CCA GGG GTC CTT TGT GAC TGC CCG GCT TGA CCG GGA CGA CCA CAG AGT
 asp arg pro arg pro gly val leu cys asp cys arg ala GPA arg gly arg pro gln ser
 483/161
 CCG TCA TCG CCT AAG GCT ACC GTT CTG ACC TGG GGC TGC GTG GGC GCC GAC GAC GTG AGC
 arg ser ser pro lys ala thr val leu thr trp gly cys val gly ala asp asp val arg
 543/181
 CAC GTC ATG TCT CAG CGG CCC ACC GCC ACC TCG GTC GCC GGC AGT ATG TCA GCA TGT GCA
 his val met ser gln arg pro thr ala thr ser val ala gly ser met ser ala cys ala
 603/201
 GAT GAC TCC ACC CAG CCT TGT TCG CAT CGT TGG TGT CGT GGT TGC GAC GAC CTT GGC GCT
 asp asp ser thr gln pro cys ser his arg trp cys arg gly cys asp asp leu gly ala
 663/221
 GGT GAG CGC ACC CGC CGG CGG TCG TGC CGC GCA TGC GGA TC
 gly glu arg thr arg arg arg ser cys arg ala cys gly

SEQ ID N° 13C

FIGURE 13C

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partie de la séquence nucléotidique de seq13A

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1/1                               31/11
GGG TCC TTT CTG ACT GGC GGG CTT GAC GCG GAC CAC AGA GTC GGT CAT GCG CTA AGC
gly ser phe val thr ala gly leu asp ala asp asp his arg val gly his arg leu arg
61/21                               91/31
CTA GCG TTC TGA CCT GGG GGT GCG TGG GCG CCG ACG ACG TGA GCG ACG TCA TGT CTC AGC
leu pro phe GPA pro gly ala ala trp ala pro thr thr GPA gly thr ser cys leu ser
121/41                               151/51
GCG CCA GCG CCA CCT GGG TCG CCG GCA GTA TGT CAG CAT GTG CAG ATG ACT CCA GCG AGC
gly pro pro pro pro arg ser pro ala val cys gln his val gln met thr pro arg ser
181/61                               211/71
CTT GTT GCG ATC GTT GGT GTC GTG GTT GCG ACG ACC TTG GCG CTG GTG AGC GCA GCG GCG
leu val arg ile val gly val val val ala thr thr leu ala leu val ser ala pro ala
241/81
GCG GGT CGT GCG GCG CAT GCG CAT C
gly gly arg ala ala his ala asp

```

SEQ ID N° 13A'

FIGURE 13A'

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1/1                               31/11
GGT CCT TTG TGA CTG CCG GCG TTG ACG CCG ACG ACC ACA GAG TCG GTC ATC GCG TAA GCG
gly pro leu GPA leu pro gly leu thr arg thr thr thr glu ser val ile ala GCH gly
61/21                               91/31
TAC GGT TGT GAC CTG GGG CTG GGT GCG GCG CGA CGA CGT GAG GCA CGT CAT GTC TCA GCG
tyr arg ser asp leu gly leu arg gly arg arg arg arg glu ala arg his val ser ala
121/41                               151/51
GCG CAC GCG CAC CTC GGT GCG CCG CAG TAT GTC ACG ATG TCG AGA TGA CTC CAC GCA GCG
ala his arg his leu gly arg arg gln tyr val ser met cys arg GPA leu his ala ala
181/61                               211/71
TTG TTC GCA TCG TTG GTG TCG TGG TTG CGA CGA CCT TCG CCG TCG TGA GCG CAC CCG CCG
leu phe ala ser leu val ser trp leu arg arg pro trp arg trp GPA ala his pro pro
241/81
GCG GTC GTG CCG GCG ATG GCG ATC
ala val val pro arg met arg ile

```

SEQ ID N° 13B'

FIGURE 13B'

```

1/1                               31/11
GTC CTT TGT GAC TGC CCG GGT TGA CCG GCA CGA GCA CAG AGT CCG TCA TCG CCT AAG GGT
val leu cys asp cys arg ala GPA arg gly arg pro gln ser arg ser ser pro lys ala
61/21                               91/31
ACC GTT CTG ACC TGG GCG TGC GTG GCG GCG GAC GAC GTC AGC CAC GTC ATG TGT CAG CCG
thr val leu thr trp gly cys val gly ala asp asp val arg his val met ser gln arg
121/41                               151/51
CGC ACC GCG ACC TCG GTC GCG GCG AGT ATG TCA GCA TGT GCA GAT GAC TCG AGC CAG GGT
pro thr ala thr ser val ala gly ser met ser ala cys ala asp asp ser thr gln pro
181/61                               211/71
TGT TCG CAT GGT TGG TGT GGT GGT TCG GAC GAC CTT GCG GGT GGT GAG GCG ACC GCG GCG
cys ser his arg trp cys arg gly cys asp asp leu gly ala gly glu arg thr arg arg
241/81
GCG TCG TCG GCG GCA TCG GGA TC
arg ser cys arg ala cys gly

```

SEQ ID N° 13C'

FIGURE 13C'

FEUILLE DE REMPLACEMENT (REGLE 26)

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séquence Rv1984c prédite par Cole et al. (Nature 393:537-544) et contenant seq13A'

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1/1                               31/11
atg act cca cgc agc ctt gtt cgc atc gtt ggt gtc gtg gtt gag acg acc ttg gcg atg
Met thr pro arg ser leu val arg ile val gly val val val ala thr thr leu ala leu
61/21                               91/31
gtg agc gca ccc gcc ggc ggt cgt gcc gcg cat gag gat ccg tct tcc gac atc gcg gtc
val ser ala pro ala gly gly arg ala ala his ala asp pro cys ser asp ile ala val
121/41                               151/51
gtt ttc gct cgc gcc acg cat cag gat tct ggt ctt gcc gac gtc ggt gag gcg ttc gtc
val phe ala arg gly thr his gln ala ser gly leu gly asp val gly glu ala phe val
181/61                               211/71
gac tcc ctt acc tcc cca gtt gcc ggc cgg tcc att ggg gtc tac gcc gtg aac tac cca
asp ser leu thr ser gln val gly gly arg ser ile gly val tyr ala val asn tyr pro
241/81                               271/91
gca agc gac gac tac cgc gag agc gcc tca aac ggt tcc gat gat gcc agc gcc cac atc
ala ser asp asp tyr arg ala ser ala ser asn gly ser asp asp ala ser ala his ile
301/101                               331/111
cag cgc acc gtc gcc agc tgc cgg aac acc agg att gtg ctt ggt gcc tat tcc cag ggt
gln arg thr val ala ser cys pro asn thr arg ile val leu gly gly tyr ser gln gly
361/121                               391/131
gag acg gtc atc gat ttg tcc acc tcc gcc atg ccg ccc gcc gtg gca gat cat gtc gcc
ala thr val ile asp leu ser thr ser ala met pro pro ala val ala asp his val ala
421/141                               451/151
gct gtc gcc ctt ttc gcc gag cca tcc agt ggt ttc tcc agc atg ttg tgg gcc gcc gcc
ala val ala leu phe gly glu pro ser ser gly phe ser ser met leu trp gly gly gly
481/161                               511/171
tcc ttg ccg acc atc ggt ccg ctg tat agc tct aag acc ata aac ttg tgt gct ccc gac
ser leu pro thr ile gly pro leu tyr ser ser lys thr ile asn leu cys ala pro asp
541/181                               571/191
gat cca ata tgc acc gga gcc gcc aat att atg gcc cat gtt tcc tat gtt cag tcc gcc
asp pro ile cys thr gly gly gly asn ile met ala his val ser tyr val gln ser gly
601/201                               631/211
atg acc agc cag gcc gcc acc ttc gcc gcc aac agg ctc gat cac gcc gga tga
met thr ser gln ala ala thr phe ala ala asn arg leu asp his ala gly CFA

```

SEQ ID N° 13D

FIGURE 13D

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SeqL3F: ORF prédite par Cole et al. (Nature 393:537-544) et contenant Svl9E4c

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1/1                               31/11
tga ggc acg tca tgt ctg agc ggc cca cgg cca cct cgg tgg ccg gca gta tgt cag cat
OPA gly thr ser cys leu ser gly pro pro pro pro arg ser pro ala val cys gln his
61/21                               91/31
gtg cag atg act cca cgc agc ctt gtt cgc atc gtt ggt gtc gtg gtt gcg acc acc ttg
val gln met thr pro arg ser leu val arg ile val gly val val val ala thr thr leu
121/41                               151/51
ggc ctg gtg agc gca ccc gcc ggc ggt cgt gcc gcg cat gcg gat ccg tgt tgg gac atc
ala leu val ser ala pro ala gly gly arg ala ala his ala asp pro cys ser asp ile
181/61                               211/71
ggc gtc gtt ttc gct cgc ggc acg cat cag gct tct ggt ctt gcc gac gtc ggt gag gcg
ala val val phe ala arg gly thr his gln ala ser gly leu gly asp val gly glu ala
241/81                               271/91
ttc gtc gac tgg ctt acc tgg caa gtt ggc ggg cgg tgg att ggg gtc tac gcg gtg aac
phe val asp ser leu thr ser gln val gly gly arg ser ile gly val tyr ala val asn
301/101                               331/111
tac cca gca agc gac gac tac cgc gcg agc gcg tca aac ggt tcc gat gat gag agc gcc
tyr pro ala ser asp asp tyr arg ala ser ala ser asn gly ser asp asp ala ser ala
361/121                               391/131
cac atc cag cgc acc gtc gcc agc tgc ccg aac acc agg att gtg ctc ggt gcc tat tgg
his ile gln arg thr val ala ser cys pro asn thr arg ile val leu gly gly tyr ser
421/141                               451/151
cag ggt gcg acg gtc atc gat ttg tcc acc tgg gcg atg ccg ccc gcg gtg gca gat cat
gln gly ala thr val ile asp leu ser thr ser ala met pro pro ala val ala asp his
481/161                               511/171
gtc gcc gcc gtc gcc ctt ttc gcc gag cca tcc agt ggt tta tcc agc atg ttg tgg gcc
val ala ala val ala leu phe gly glu pro ser ser gly phe ser ser met leu trp gly
541/181                               571/191
ggc ggg tgg ttg ccg aca atc ggt ccg atg tat agc tct aag acc ata aac ttg tgt gct
gly gly ser leu pro thr ile gly pro leu tyr ser ser lys thr ile asn leu cys ala
601/201                               631/211
ccc gac gat cca ata tgc acc gga ggc gcc aat att arg gcg cat gtt tgg tat gtt cag
pro asp asp pro ile cys thr gly gly gly asn ile met ala his val ser tyr val gln
661/221                               691/231
tcg ggg atg aca agc cag gcg gcg aca ttc gcg gcg aac agg ctg gat cac gcc gga tga
ser gly met thr ser gln ala ala thr phe ala ala asn arg leu asp his ala gly OPA

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SEQ ID N° 13F

FIGURE 13F

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31/11
 CCA CCG GGG CTG GAG GGG CGA ATG TGC GCC GAA CCG GGT CCG CCA ACT TGG CCG CTG AGG
 pro pro gly leu glu gly arg met cys ala glu arg arg arg pro thr trp pro leu arg
 61/21
 GCG GCT GAT CCC CTG GCC CGA GAC GGG GCA AGC CAA TAG CCG CTC CAT CCG GCT TTG CTG
 ala ala asp pro leu ala arg asp gly ala ser gln AMB arg leu his arg ala leu leu
 121/41
 GTA GCG GTT CCG CCG GAA CCG AGC GCC GAC GTT CTC GGT GCC CCG TGA TAT ATT GGG TCA
 val ala val arg arg glu pro ser ala asp val val gly ala arg OPA tyr ile gly ser
 181/61
 GAC GGG TAT GGC GGC GAC TGA GGT GAT CTG CGA CAC GCC GCC CCG GTG CTC GAG CCA GGC
 asp gly tyr gly gly asp OPA gly asp leu arg his ala ala ala val leu glu pro gly
 241/81
 TTA CGA CCA GCG AAT TTC GAA AAT GTT ATT CAG AAC ATC TTG TAT CTC TTC CTC GGT GCC
 leu arg pro gly asn phe glu asn val ile gln asn ile leu tyr leu phe leu arg ala
 301/101
 ACC CCC TAG GTG TAG TGT TTT CGA GTA CCG GCA GAT CCC AGT TCA CCA GTC TCA CCA GAT
 thr pro AMB val AMB cys phe arg val pro ala asp pro ser ser pro val ser pro asp

C

SEQ ID N° 14A

FIGURE 14A

32/11
 CAC CCG GGC TGG AGG GGC GAA TGT GCG CCG AAC CCC CTC GGC CAA CTT GGC CCG TGA GCG
 his arg gly trp arg gly glu cys ala pro asn ala val gly gln leu gly arg OPA gly
 62/21
 CCG CTG ATC CCC TGG CCC GAG ACG GGG CAA GCG AAT AGC GGC TCC ATC GGG CTT TGC TGG
 arg leu ile pro trp pro glu thr gly gln ala asn ser gly ser ile gly leu cys trp
 122/41
 TAG CCG TTC GGC GGG AAC CGA CCG CCG ACG TTG TCG CTC CCC GGT GAT ATA TTC GGT CAG
 AMB arg phe gly gly asn arg ala pro thr leu ser val pro gly asp ile leu gly gln
 182/61
 ACG GGT ATG CCG GCG ACT GAG GTG ATC TGC GAC ACG CCG CCG CCG TGC TCG AGC CAG GCT
 thr gly met ala ala thr glu val ile cys asp thr pro pro arg cys ser ser gln ala
 242/81
 TAC GAC CAG GCA ATT TCG AAA ATG TTA TTC AGA ACA TCT TGT ATC TCT TCC TCC GTG CCA
 tyr asp gln gly ile ser lys met leu phe arg thr ser cys ile ser ser ser val pro
 302/101
 CCC CCG AGG TGT AGT GTT TTC GAG TAC CCG CAG ATC CCA GTT CAC CAG TCT CAC CAG ATC
 pro pro arg cys ser val phe glu tyr arg gln ile pro val his gln ser his gln ile

SEQ ID N° 14B

FIGURE 14B

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33/11
 ACC GGG GCT GGA GGG GCG AAT GTG CGC CGA ACC CCG TCG GCG AAC TTG GCC GCT GAG GGC
 thr gly ala gly gly ala asn val arg arg thr pro ser ala asn leu ala ala glu gly
 63/21
 GGC TGA TCC CCT GGC CCG AGA CCG GCG AAG CCA ATA CCG GCT CCA TCG GGC TTT GCT GGT
 gly GGA ser pro gly pro arg arg gly lys pro ile ala ala pro ser gly phe ala gly
 123/41
 ACC GGT TCG GCG GGA ACC GAG CCG CGA CGT TGT CCG TGC CCG GTG ATA TAT TCG GTC AGA
 ser gly ser ala gly thr glu arg arg arg cys arg cys pro val ile tyr trp val arg
 183/61
 CCG GTA TGG CCG CGA CTG AGG TGA TCT GCG ACA CCG CCG CCG GGT GCT CGA GCG AGG CTT
 arg val trp arg arg leu arg GGA ser ala thr arg arg arg gly ala arg ala arg leu
 243/81
 ACC ACC AGG GAA TTT CGA AAA TGT TAT TCA GAA CAT GTT GTA TCT CTT CCT CCG TGC CAC
 thr thr arg glu phe arg lys cys tyr ser gln his leu val ser leu pro pro cys his
 303/101
 CCC CTA GGT GTA GTG TTT TCG AGT ACC GGC AGA TCC CAG TTC ACC AGT CTC ACC AGA TC
 pro leu gly val val phe ser ser thr gly arg ser gln phe thr ser leu thr arg

SEQ ID N° 14C

FIGURE 14C

partie de la séquence nucléotidique de seq14A

1/1 31/11
 TTT TCG AGT ACC GGC AGA TCC CAG GTT CAC CAG GTC TCA CCA GAT C
 phe ser ser thr gly arg ser gln val his gln val ser pro asp

SEQ ID N° 14A'

FIGURE 14A'

1/1 31/11
 TGT TTT CGA GTA CCG GCA GAT CCC AGG TTC ACC AGG TCT CAC CAG ATC
 cys phe arg val pro ala asp pro arg phe thr arg ser his gln ile

SEQ ID N° 14C

FIGURE 14C

1/1 31/11
 GTT TTC GAG TAC CCG CAG ATC CCA GGT TCA CCA GGT CTC ACC AGA TC
 val phe glu tyr arg gln ile pro gly ser pro gly leu thr arg

SEQ ID N° 14C'

FIGURE 14C'

FEUILLE DE REMPLACEMENT (REGLE 26)

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ORF prédite d'après la séquence publiée par Cole et al. (Nature 393:537-544) et contenant seq14A'

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1/1                               31/11
TAG CCG TTC GCG GCG AAG CTA GCG GCG ACC TTC TCG GTG GCC GGT GAT ATA TTG GGT CAG
AMB arg phe gly gly lys leu ala ala thr leu ser val ala gly asp ile leu gly gln
61/21                               91/31
ACG GGT ATG GCG GCG GCT GAG GTG ATC TGC GAC ACC CCG CCG CCG TGC TCG ACC CAG GGT
thr gly met ala ala ala glu val ile cys asp thr pro pro arg cys ser ser gln ala
121/41                               151/51
TAC GAC CAG GGA ATT TCG AAA ATG TTA TTC AGA ACA TCT TGT ATC TCT TCT CCG TGC CAC
tyr asp gln gly ile ser lys met leu phe arg thr ser cys ile ser ser pro cys his
181/61                               211/71
CCC CTA GGT GTA GTG TTT TCG AGT ACC GCG AGA TCC CAG GTT CAC CAG GTC TCA CCA gat
pro leu gly val val phe ser ser thr gly arg ser gln val his gln val ser pro asp
241/81                               271/91
CCA CCG GCG GCG ATG AAC TTC CCG GCA TCG GCA TCG CCA GGT CCA CCG ACG TGG TCG CCG
pro arg gly ala met asn phe pro ala ser ala ser pro gly arg arg thr trp ser arg
301/101                               331/111
TAT GAC GGG AAT CTG GAG CCG TGT CCG GCG GGT CAA CAT ATC GAA GAT GCA CCA CTT GAG
tyr asp gly asn leu glu pro cys arg ala ala gln his ile glu asp ala leu leu glu
361/121                               391/131
TCG TTG CCA GAT CCG GTC AGA TTC CCG ATT TCC GCA AAG GAG CCG TAC GCC CAT GAC CGT
ser leu pro asp pro val arg phe pro ile ser ala lys glu arg tyr ala his asp arg
421/141
GAC CGT TTA CAC TAA
asp arg leu his OCH

```

SEQ ID N° 14F

FIGURE 14F

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Séquence Rv3054c prédite par Cole et al. (Nature 393:537-544)
pouvant être en phase avec Seq14A'

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1/1                               31/11
gtg tca gat acc aag tcc gac atc aaa atc ttg gcc tta gtg gga agc ctg cgc gag gcc
val ser asp thr lys ser asp ile lys ile leu ala leu val gly ser leu arg ala ala
61/21                               51/31
ccg ttc aac cgc cag atc gcc gag atg gct gcc aag gtc gct ccg gac ggc gtc acc gtc
ser phe asn arg gln ile ala glu leu ala ala lys val ala pro asp gly val thr val
121/41                               151/51
acc atg ttc gag ggg ctg ggg gac ctg ccg ttc tac aac gaa gac atc gac aca gcc acc
thr met phe glu gly leu gly asp leu pro phe tyr asn glu asp ile asp thr ala thr
181/61                               211/71
gag gtg ccg gag ccg gtg agc gcc ttg ccg gag gcc gcc tct gac gcc cac gct gcc ttg
glu val pro ala pro val ser ala leu arg glu ala ala ser asp ala his ala ala leu
241/81                               271/91
gtg gtc acg ccg gaa tac aac ggc agc att ccg gcc gtg atc aag aac gcc atc gac tgg
val val thr pro glu tyr asn gly ser ile pro ala val ile lys asn ala ile asp trp
301/101                               331/111
ctg tcc agg cca ttc gcc gat gcc gag ttg aag gac aag ccg ttg gcc gtg atc gcc gcc
leu ser arg pro phe gly asp gly ala leu lys asp lys pro leu ala val ile gly gly
361/121                               391/131
tcc atg gcc cgc tac gcc ggg gta tgg gcc cac gac gag act cgc aag tgg ttc agc atc
ser met gly arg tyr gly gly val trp ala his asp glu thr arg lys ser phe ser ile
421/141                               451/151
gct gcc acg cgg gtg gtc gat gcc atc aaa ctg tgg gtg ccg ttc caa act ctg gcc aag
ala gly thr arg val val asp ala ile lys leu ser val pro phe gln thr leu gly lys
481/161                               511/171
tcg gtc gcc gac gac gcc ggg ctg gcc gcc aat gtg cgc gac gcc gtc gcc aac ttg gcc
ser val ala asp asp ala gly leu ala ala asn val arg asp ala val gly asn leu ala
541/181
gct gag gtc gcc aga
ala glu val gly CFA

```

SEQ ID N° 14R

FIGURE 14R

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ORF prédite par Cole et al. (Nature 393:537-544) et contenant Rv3054c

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1/1                               31/11
taa cgc gat cgg aat aaa tcg gac cat ggt ccg gtt ggc tgc tgc aag gac gtg gac caa
OCH arg asp arg asn lys ser asp his gly pro val gly ser cys lys asp val asp gln
61/21                               91/31
caa ggc gaa agg aac gta gca gtg tca gat acc aag tcc gac atc aaa atc ttg gcc tta
gln ala glu arg asn val ala val ser asp thr lys ser asp ile lys ile leu ala leu
121/41                               151/51
gtg gga agc ctg cgc gcg gcg tcg ttc aac cgc cag atc gcc gag ctg gct gcc aag gtc
val gly ser leu arg ala ala ser phe asn arg gln ile ala glu leu ala ala lys val
181/61                               211/71
gct ccg gac gcc gtc acc gtc acc atg ttc gag ggg ctg ggg gac ctg ccg ttc tac aac
ala pro asp gly val thr val thr met phe glu gly leu gly asp leu pro phe tyr asn
241/81                               271/91
gaa gac atc gac aca gcg acg gag gtg ccg gcg ccg ctg agc gcg ttg ccg gag gcc gcg
glu asp ile asp thr ala thr glu val pro ala pro val ser ala leu arg glu ala ala
301/101                               331/111
tct gac gcg cac gct gcc ttg gtg gtc acc ccg gaa tac aac gcc agc att ccg gcc ctg
ser asp ala his ala ala leu val val thr pro glu tyr asn gly ser ile pro ala val
361/121                               391/131
atc aag aac gcg atc gac tgg ctg tcc agg cca ttc gcc gat gcc gcg ttg aag gac aag
ile lys asn ala ile asp trp leu ser arg pro phe gly asp gly ala leu lys asp lys
421/141                               451/151
ccg ttg gcc gtg atc gcc gcc tcc atg gcc ccg tac gcc ggg gta tgg gcg cac gac gag
pro leu ala val ile gly gly ser met gly arg tyr gly gly val trp ala his asp glu
481/161                               511/171
act cgc aag tcg ttc agc atc gct gcc acg ccg gtg gtc gat gcg atc aaa ctg tcg gtg
thr arg lys ser phe ser ile ala gly thr arg val val asp ala ile lys leu ser val
541/181                               571/191
ccg ttc caa act ctg gcc aag tcg gtc gcg gac gac gcc ggg ctg gcg gcg aat gtg cgc
pro phe gln thr leu gly lys ser val ala asp asp ala gly leu ala ala aac val arg
601/201                               631/211
gac gcc gtc gcc aac ttg gcc gct gag gtc gcc tga
asp ala val gly asn leu ala ala glu val gly OPA

```

SEQ ID N° 14P

FIGURE 14P

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fragment d'après la séquence publiée par Cole et al. (Nature 393:537-544) et contenant seq 14P' et seq 14P'

1/1 31/11
 taa cgc gat cgg aac aaa tgc gac cat ggt cgc gtt ggc tgc tgc aag gac gtg gac caa
 OCH arg asp arg asn lys ser asp his gly pro val gly ser cys lys asp val asp gln
 asn ala ile gly ile asn arg thr met val arg leu ala arg ala arg thr trp thr asn
 thr arg ser glu OCH ile gly pro trp ser gly trp leu val gln gly arg gly pro thr
 61/21 91/31
 caa gag gaa agg aac gta gca gtg tca gat acc aag tcc gac atc aaa atc ttg gcc tta
 gln ala glu arg asn val ala val ser asp thr lys ser asp ile lys ile leu ala leu
 lys arg lys gly thr AMS gln cys gln ile pro ser pro thr ser lys ser trp pro AMS
 ser gly lys glu arg ser ser val arg tyr gln val arg his gln asn leu gly leu ser
 121/41 151/51
 gtg gga agc ctg cgc gag gag tgc ttc aac cgc cag atc gcc gag ctg gct gcc aag gtc
 val gly ser leu arg ala ala ser phe asn arg gln ile ala glu leu ala ala lys val
 trp glu ala cys ala arg arg arg ser thr ala arg ser pro ser trp leu pro arg ser
 gly lys pro ala arg gly val val gln pro pro asp arg arg ala gly cys gln gly arg
 181/61 211/71
 gct cgc gac ggc gtc acc gtc acc atg ttc gag cgc gag gac atg cgc ttc tac aac
 ala pro asp gly val thr val thr met phe glu gly leu gly asp leu pro phe tyr asn
 leu arg thr ala ser pro ser pro cys ser arg gly trp gly thr cys arg ser thr thr
 ser gly arg arg his arg his his val arg gly ala gly gly pro ala val leu gln arg
 241/81 271/91
 gaa gac atc gac aca cgc agc gag gtg cgc gag cgc gag agc gag ttc cgc gag gcc gag
 glu asp ile asp thr ala thr glu val pro ala pro val ser ala leu arg glu ala ala
 lys thr ser thr gln arg arg arg cys arg arg arg OPA ala arg cys gly arg pro arg
 arg his arg his ser asp gly gly ala gly ala gly glu arg val ala gly gly arg val
 301/101 331/111
 tet gac ggc cac gct gcc ttg gtg gtc acg cgc gaa tac aac gcc agc att cgc gcc gtg
 ser asp ala his ala ala leu val val thr pro glu tyr asn gly ser ile pro ala val
 leu thr arg thr leu pro trp trp ser arg arg asn thr thr ala ala phe arg pro OPA
 OPA arg ala arg cys leu gly gly his ala gly ile gln arg gln his ser gly arg asp
 361/121 391/131
 acc aag aac cgc atc gac tgc ctg tcc agc cca ttc gcc gat gcc gag ttg aag gac aag
 ile lys asn ala ile asp trp leu ser arg pro phe gly asp gly ala leu lys asp lys
 ser arg thr arg ser thr gly cys pro gly his ser ala met ala arg OPA arg thr ser
 gln glu arg asp arg leu ala val gln ala ile arg arg trp arg val glu gly gln ala
 421/141 451/151
 cgc ttg gcc gtg atc gcc gcc tcc atg gcc cgc tac gcc gcc gta tgc gcc cac gac gag
 pro leu ala val ile gly gly ser met gly arg tyr gly gly val trp ala his asp glu
 arg trp pro OPA ser ala ala pro trp ala ala thr ala gly tyr gly arg thr thr arg
 val gly arg asp arg arg leu his gly pro leu arg arg gly met gly ala arg arg asp
 481/161 511/171
 act cgc aag tgc ttc agc acc gct gcc agc cgc gtg gtc gat gag atc aaa ctg tgc gtg
 thr arg lys ser phe ser ile ala gly thr arg val val asp ala ile lys leu ser val
 leu ala ser arg ser ala ser leu ala arg gly trp ser met arg ser asn cys arg cys
 ser gln val val gln his arg trp his ala gly gly arg cys asp gln thr val gly ala
 541/181 571/191
 cgc ttc caa act ctg gcc aag tgc gtc gcc gac gac gcc gcc ctg gcc gcc aac ggc cgc
 pro phe gln thr leu gly lys ser val ala asp asp ala gly leu ala ala asn val arg
 arg ser lys leu trp ala ser arg ser arg thr thr pro gly trp arg arg met cys ala
 val pro asn ser gly gln val gly arg gly arg arg ala gly gly glu cys ala arg
 601/201 631/211
 gac gcc gtc gcc aac ttg gcc gct gag gtc gcc tga tcc ctg gcc cgc gcc gcc tca gcc
 asp ala val gly asn leu ala ala glu val gly OPA ser leu gly arg gly ser ala
 thr pro ser ala thr trp pro leu arg ser ala asp pro trp ala glu ala gly gln pro
 arg arg arg gln leu gly arg OPA gly arg leu ile pro gly pro arg arg val ser gln
 661/221 691/231
 aat agc gcc tcc atc gcc ttt gct ggt agc ggt tgc gcc gga aac tag cgc cga cgt tct
 asn ser gly ser ile gly phe ala gly ser gly ser ala gly ser AMS arg arg arg cys
 ile ala ala pro ser ala leu leu val ala val arg arg glu ala ser gly asp val val
 AMS arg leu his arg leu cys trp AMS arg phe gly gly lys leu ala ala thr leu ser

SEQ ID N° 14Q

FEUILLE DE REMPLACEMENT (REGLE 26)

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721/241 761/251
 cgg tgg cgg gtc ata tat tgg gtc aga cgg gta tgg cgg cgg ctg agg tga tct ggg aca
 arg trp pro val ile tyr trp val arg arg val trp arg arg leu arg opa ser ala thr
 gly gly arg opa tyr ile gly ser asp gly tyr gly gly opa gly asp leu arg his
 val ala gly asp ile leu gly gln thr gly met ala ala ala glu val ile cys asp thr
 781/261 811/271
 cgc cgc cgc ggt gct cga gcc agg ctt acc acc agg gaa ttt cga aaa tgt tat tca gaa
 arg arg arg gly ala arg ala arg leu thr thr arg glu phe arg lys cys tyr ser glu
 ala ala ala val leu glu pro gly leu arg pro gly asn phe glu asn val ile gln asn
 pro pro arg cys ser ser gln ala tyr asp gln gly ile ser lys met leu phe arg thr
 841/281 871/291
 cat ctt gta tct ctt ctc cgt gcc acc ccc tag gtc tag tgt ttt cga gta cgg gca gat
 his leu val ser leu leu arg ala thr pro amb val amb cys phe arg val pro ala asp
 ile leu tyr leu phe ser val pro pro arg cys ser val phe glu tyr arg gln ile
 ser cys ile ser ser pro cys his pro leu gly val val phe ser ser thr gly arg ser
 901/301 931/311
 ccc agg ttc acc agg tct cag cag ata cac ggg ggg cga tga act tcc cgg cat cgg cat
 pro arg phe thr arg ser his gln ile his gly ala arg opa thr ser arg his arg his
 pro gly ser pro gly leu thr arg ser thr gly arg asp glu leu pro gly ile gly ile
 gln val his gln val ser pro asp pro arg gly ala met asn phe pro ala ser ala ser
 961/321 991/331
 cgc cag gtc gac gga cgt ggt cgc gct atg acc gga atc tgg acc ctt gtc ggg cgg ctc
 arg gln val asp gly arg gly arg ala met thr gly ile trp ser leu val gly pro leu
 ala arg ser thr asp val val ala leu opa arg glu ser gly ala leu ser gly arg ser
 pro gly arg arg thr trp ser arg tyr asp gly asn leu glu pro cys arg ala ala gln
 1021/341 1051/351
 aac ata tgg aag atg cac tac tgg agt cgt tgc cag atc ctg tca gat tcc cga ttt cgg
 asn ile ser lys met his tyr leu ser arg cys gln ile leu ser asp ser arg phe pro
 thr tyr arg arg cys thr thr opa val val ala arg ser cys gln ile pro asp phe arg
 his ile glu asp ala leu leu glu ser leu pro asp pro val arg phe pro ile ser ala
 1081/361 1111/371
 caa agg agt ggt acc ccc atg acc gtc acc gtt tac act aa
 gln arg ser gly thr pro met thr val thr val tyr thr
 lys gly ala val arg pro opa pro opa pro phe thr leu
 lys glu arg tyr ala his asp arg asp arg leu his och

SEQ ID N° 14Q(suite)

FIGURE 14Q(suite)

1/1 31/11
 CAA GUC CGG CCG CGA CTG TTT GCC GTT TTG EGG CTC CTA CCA GAA CAC CAC CTG GCG GCC
 gln ala arg pro arg leu phe ala val leu gly leu leu pro glu his his leu ala ala
 61/21 91/31
 GCG CAC CAT GGT GTG CAC CAG TTG CGA TCG GTT CCF CCC GCG CGC GCG CGG CGA CSA CCF
 ala his his gly val his gln leu arg ser val pro pro ala arg gly arg arg arg arg
 121/41 151/51
 CGA TGC CCG CCC CCC GCG GCG GCA GCT GCG TAG CTC GAC CCG GTC GAC GAC GAC GCG GTC
 arg cys pro arg pro gly gly ala ala ala amb leu asp pro val asp asp asp gly val
 181/61 211/71
 GGC GGA CCA GTC GGC GAT GTC GAG GCG ATG GCA ATA CAG CCG CTT GGT GCG CGG CCA CAC
 gly gly pro val gly asp val glu ala met ala ile gln arg leu gly ala arg pro his
 241/81 271/91
 GTC TGA GGT GCG GAA GAC CAG TCC CGC GCC CAC CCG CAG CCG GAT CCG GAT ACC CCG TAC
 val opa gly gly glu asp gln ser arg ala his arg gln pro asp pro asp thr arg tyr

SEQ ID N° 15A

50/185

32/11
 AAG CCC GGC CGC GAC TGT TTS CCG TTT TGG GGC TCC TAC CAG AAC ACC ACC TGG CGG CGG
 lys pro gly arg asp cys leu pro phe trp gly ser tyr gls asn thr thr trp arg pro
 62/21
 CGC ACC ATG GTG TGC ACC AGT TGC GAT CCG TTC CTC CCG CGC GCG GGC GGC GAC GAC GTC
 arg thr met val cys thr ser cys asp arg phe leu pro arg ala gly gly asp asp val
 122/41
 GAT GGC CGC GGC CCG GCG GCG CAG CTG CGT AGC TCG ACC CCG TCG ACG ACG ACG GCG TCG
 asp ala arg ala pro ala ala gls leu arg ser ser thr arg ser thr thr thr thr gly ser
 182/61
 GCG GAC CAG TCG GCG ATG TCG AGG CGA TGG CAA TAC AGC GCG TTG GTG CCG GCG CAC ACC
 ala asp gln ser ala met ser arg arg trp gls tyr ser ala leu val arg gly his thr
 242/81
 TCT GAG GTG GCG AAG ACC AGT CCG GCG CCG ACC GCG ACC CCG ATC CCG ATA CCG GGT AC
 ser glu val ala lys thr ser pro ala pro thr gly ser arg ile arg ile arg gly

SEQ ID N° 15B

FIGURE 15B

33/11
 AGC CCG GCG GCG ACT GTT TCC CGT TTT GCG GCT CCT ACC AGA ACA CCA CCT GCG GCG CGC
 ser pro ala ala thr val cys arg phe gly ala pro thr arg thr pro pro gly gly arg
 63/21
 GCA CCA TCG TGT GCA CCA GTT GCG ATC GGT TCC TCC CCG GCG CCG GCG GCG ACC ACC TCG
 ala pro trp cys ala pro val ala ile gly ser ser arg ala arg ala ala thr thr ser
 123/41
 ATG CCC GCG CCC CCG CCG CCG AGC TGC GTA GGT CGA CCC GGT CGA CCA CGA CCG GGT CCG
 met pro ala pro arg arg arg ser cys val ala arg pro gly arg arg arg arg gly arg
 183/61
 CCG ACC ACT CCG CGA TGT CGA GCG GAT GCG AAT ACA GCG CCT TGG TGC GCG GCG ACA CGT
 arg thr ser arg arg cys arg gly asp gly asn thr ala pro trp cys ala ala thr arg
 243/81
 CTG AGG TGG CGA AGA CCA GTC CCG CCG CCA CCG GCA GCG GCA TCC CGA TAC GCG GTA C
 leu arg trp arg arg pro val pro arg pro pro ala ala gly ser gly tyr ala val

SEQ ID N° 15C

FIGURE 15C

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partie de la séquence nucléotidique de seq15A

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1/1                               31/11
GGC GGC CGC GCG CCA TGG TGT GCA CCA GTT GCG ATC GGT TCT CCC GCG CGC GGG CGG CGA
gly gly arg ala pro trp cys ala pro val ala ile gly ser pro ala arg gly arg arg
61/21                               91/31
CGA CGT CGA TGG CGG CGC CCC GGC GGC TGC AGC TGC GTA GCT CGA CCC GGT CGA CGA CGA
arg arg arg trp pro arg pro gly gly cys ser cys val ala arg pro gly arg arg arg
121/41                               151/51
CGG GGT CGG CGG GGC AGT CGG CGA TGT CGA GCG GAT GGC AAT ACA GCG CCT TCG TCG GCG
arg gly arg arg ala ser arg arg cys arg gly asp gly asn thr ala pro trp cys ala
181/61                               211/71
GCC ACA CGT CTG AGG TGG CGA ACA CCA GTC CCG CGC CCA CCG GCA GCG GGA TC
ala thr arg leu arg trp arg arg pro val pro arg pro pro ala ala gly

```

SEQ ID N° 15A'

FIGURE 15A'

```

1/1                               31/11
GCG GCC GCG CGC CAT GGT GTG CAC CAG TTG CGA TCG GTT CTC CCG CGC GCG GGC GCG GAC
ala ala ala arg his gly val his gin leu arg ser val leu pro arg ala gly gly asp
61/21                               91/31
GAC GTC GAT GGC CGC GCG CCG GCG GGT GCA GCT GCG TAG CTC GAC CCG CTC GAC GAC GAC
asp val asp gly arg ala pro ala ala ala ala ala AAB leu asp pro val asp asp asp
121/41                               151/51
GGG GTC GCG GGG CCA GTC GCG GAT GTC GAG CGC ATC GCA ATA CAG CGC CTT GGT GCG CGG
gly val gly gly pro val gly asp val glu ala met ala ile gin arg leu gly ala arg
181/61                               211/71
CCA CAC GTC TGA GGT GCG GAA GAC CAG TCC CCG GCG CAC CCG CAG CCG GAT C
pro his val GFA gly gly glu asp gin ser arg ala his arg gin pro asp

```

SEQ ID N° 15B'

FIGURE 15B'

```

1/1                               31/11
TGG CCG CGC CGC GCC ATG GTG TCG ACC AGT TCG GAT CCG TTC TCC CGC GCG CGG CGG GCG
trp arg pro arg ala met val cys thr ser cys asp arg phe ser arg ala arg ala ala
61/21                               91/31
ACG ACG TCG ATG GCC GCG CCC CGG CCG CTG CAG CTG CGT AGC TCG ACC CGG TCG ACC ACC
thr thr ser met ala ala pro arg arg leu gin leu arg ser ser thr arg ser thr thr
121/41                               151/51
ACG CCG TCG GCG GCG CAG TCG GCG ATG TCG AGC CGA TGG CAA TAC AGC GCG TTG GTG CCG
thr gly ser ala gly gin ser ala met ser arg arg trp gin tyr ser ala leu val arg
181/61                               211/71
GGC CAC ACG TCT GAG GTG GCG AAG ACC AGT CCG GCG CCC ACC GCG ACC CGG ATC
gly his thr ser glu val ala lys thr ser pro ala pro thr gly ser arg ile

```

SEQ ID N° 15C'

52/185

ORF contenant Seq15A' d'après Cole et al. (Nature 393:337-344)

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1/1                               31/11
taa ggt cag cca acg ctt tac gct cga cgg cag cca cga gtt ggc cgg cca ctt tca ggc
OCH gly pro pro thr leu tyr ala arg arg pro pro arg val gly arg pro leu ser gly
61/21                               51/31
cgt agt cag cgc agg gca ggg ctt ccc gcg tcg tct tcg cgg gtt tgt cgg cca agg tgt
arg ser arg arg arg ala gly leu pro ala ser ser ser arg val cys arg gln arg cys
121/41                               151/51
agg ggt agc gtt cgt ggg cgt cga cga cga tgt gca gct cgg gga tgc cgg cgg cgt ggg
arg gly ser val arg gly arg arg arg arg cys ala ala arg gly cys arg arg arg gly
161/61                               211/71
cgg tgg ggg tgc gca cgc cag gcc gcg act gtt tgc ggg ttt tgg ggc tct gcc aga aca
arg trp gly cys ala arg pro ala ala thr val cys ala phe trp gly ser ala arg thr
241/81                               271/91
cca cct ggc ggc cgc gcg cca tgg tgt gca cca gtt gcg atc ggt tct ccc gcg cgc ggg
pro pro gly gly arg ala pro trp cys ala pro val ala ile gly ser pro ala arg gly
301/101                               331/111
cgg cga cga cgt cga tgg cag cgc ccc ggc ggc tgc agc tgc gca gat cga ccc ggt cga
arg arg arg arg arg trp pro arg pro gly gly cys ser cys val ala arg pro gly arg
361/121                               391/131
cga cga cgg ggt cgg cgg gcc agt cgg cga tgt cga ggc gat ggc aat aca gcg cct tgg
arg arg arg gly arg arg ala ser arg arg cys arg gly asp gly asn thr ala pro trp
421/141                               451/151
tgc gcg gcc aca cgt ctg agg tgg cga aga cca gtc ccg cgc cca cag gca gcc gga tca
cys ala ala thr acg leu arg trp arg arg pro val pro arg pro pro ala ala gly ser
481/161                               511/171
ggt agg gca ggc gcg agt ctt cag cgg ggt tgg agg cga cga gca gct cca cag agt gtg
gly arg ala gly ala ser leu gln arg gly trp arg arg arg ala ala pro gln ser val
541/181                               571/191
agg cta cgg gcg gcg tac ggc aac ggt gaa gca gcc act ccg acg aac cca tgc tca cgt
arg val arg ala ala tyr gly asn gly gln ala gly thr pro thr asn pro ser ser arg
601/201
cga agg ggc agg tga
arg arg gly arg CFA

```

SEQ ID N° 15F

FIGURE 15F

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R:Rv2530c prédite d'après Cole et al. (Nature 393:537-544) et pouvant être en phase avec SEQ15A

```

1/1                               31/31
gtg acg gca ctg atc gat gtc aat gtg ctg atc gag ctg ggc tgg cag aat cac gtt cac
val thr ala leu leu asp val asn val leu ile ala leu gly trp pro asn his val his
61/21                               91/31
cat gag gcc gag cag cga tgg ttc acg cag ttc tcc tcc aat ggg tgg gcc acc acg cag
his ala ala ala gln arg trp phe thr gln phe ser ser asn gly trp ala thr thr pro
121/41                               131/51
atc acc gag gca ggg tat gtc cga att tca agc aat cgc agt gtg atg cag gtg tgg acc
ile thr glu ala gly tyr val arg ile ser ser asn arg ser val met gln val ser thr
181/61                               211/71
acg cag gct atc gag atc gct cag ttg gag gag atg act tct ctt gcc ggg cac acg ttt
thr pro ala ile ala ile ala gln leu ala ala met thr ser leu ala gly his thr phe
241/81                               271/91
tgg cct gac gat gtg cca ctg atc gtc ggg agc gcc ggc gat cgc gat gag gtg tcc aac
trp pro asp asp val pro leu ile val gly ser ala gly asp arg asp ala val ser asn
301/101                               331/111
cac agt egg gtc acc gac tgc cat ctc atc gcc ttg gcc gag cgc tac ggg gcc cgg ttg
his arg arg val thr asp cys his leu ile ala leu ala ala arg tyr gly gly arg leu
361/121                               391/131
gtc acc ttc gat gcc gca ctg gcc gat tca gca tcc gca ggc ctc gtc gag gtg ttg tag
val thr phe asp ala ala leu ala asp ser ala ser ala gly leu val glu val leu AMB

```

SEQ ID N° 15R

FIGURE 15R

Seq15P: ORF d'après Cole et al. (Nature 393:537-544) contenant Rv2530c

```

1/1                               31/31
tga tgt tcc gcc gga tgc gcc gac ggt gac ttc cga gga tgt cgt cag cgc gct cga gga
cga cys ser ala gly cys ala asp gly asp phe arg gly cys arg pro arg ala arg gly
61/21                               91/31
cga cgt gtg acg gca ctg atc gat gtc aat gtg ctg atc gag ctg ggc tgg cag aat cac
arg arg val thr ala leu leu asp val asn val leu ile ala leu gly trp pro asn his
121/41                               151/51
gtt cat cat gag gcc gag cag cga tgg ttc acg cag ttc tcc tcc aat ggg tgg gcc acc
val his his ala ala ala gln arg trp phe thr gln phe ser ser asn gly trp ala thr
181/61                               211/71
acg cag atc acc gag gca ggg tat gtc cga att tca agc aat cgc agt gtg atg cag gtg
thr pro ile thr glu ala gly tyr val arg ile ser ser asn arg ser val met gln val
241/81                               271/91
tgg acc acg cag gct atc gag atc gct cag ttg gag gag arg act tct ctt gcc ggg cac
ser thr thr pro ala ile ala ile ala gln leu ala ala met thr ser leu ala gly his
301/101                               331/111
acg ttt tgg cct gac gat gtg cca ctg atc gtc ggg agc gcc ggc gat cgc gat gag gtg
thr phe trp pro asp asp val pro leu ile val gly ser ala gly asp arg asp ala val
361/121                               391/131
tcc aac cag cgt egg gtc acc gac tgc cat ctc atc gcc ttg gcc gag cgc tac egg gcc
ser asn his arg arg val thr asp cys his leu ile ala leu ala ala arg tyr gly gly
421/141                               451/151
egg ttg gtc acc ttc gat gcc gca ctg gcc gat tca gca tcc gca ggc ctc gtc gag gtg
arg leu val thr phe asp ala ala leu ala asp ser ala ser ala gly leu val glu val
481/161
tgg tag
leu AMB

```

SEQ ID N° 15P

FEUILLE DE REMPLACEMENT (REGLE 26)

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Fragment contenant Seq15P' et Seq 15F'

1/1 31/11
 tga tgt tcc gcc gga cgc gcc gac ggt gac ttc cga gga tgt cgt ccg cgc gct cga gga
 CPA cys ser ala gly cys ala asp gly asp phe arg gly cys arg pro arg ala arg gly
 asp val pro pro asp ala pro thr val thr ser glu asp val val arg ala leu glu asp
 Met phe arg arg met arg arg arg CPA leu pro arg met ser ser ala arg ser arg thr
 61/21 91/31
 cga cgt cgc acg gca ctg ctc gat gtc aat gtc ctg atc gcc ctg gcc tgg ccg aat cac
 arg arg val thr ala leu leu asp val asn val leu ile ala leu gly trp pro asn his
 asp val CPA arg his cys ser met ser met cys CPA ser arg trp ala gly arg ile thr
 thr cys asp gly thr ala arg cys glu cys ala asp arg ala gly leu ala glu ser arg
 121/41 151/51
 gtt cac cat gcc gcc gcc cag cga tgg ttc acg cag ttc tcc tcc aat ggg tgg gcc acc
 val his his ala ala ala glu arg trp phe thr glu phe ser ser asn gly trp ala thr
 phe thr met arg pro arg ser asp gly ser arg ser ser pro arg met gly gly pro pro
 ser pro cys gly arg ala ala met val his ala val leu leu glu trp val gly his his
 181/61 211/71
 acg ccg atc acc gag gca ggg tat gtc cga att tca gcc aat cgc agt gtc atg cag gtc
 thr pro ile thr glu ala gly tyr val arg ile ser ser asn arg ser val met glu val
 arg arg ser pro arg glu gly met ser glu phe glu ala ile ala val CPA cys arg cys
 ala asp his arg gly arg val cys pro asn phe lys glu ser glu cys asp ala gly val
 241/81 271/91
 tgg acc acg ccg gct atc gcc atc gct cag tgg gcc gcc acg acc tct ctt gcc ggg cac
 ser thr thr pro ala ile ala ile ala glu leu ala ala met thr ser leu ala gly his
 arg pro arg arg leu ser arg ser leu ser trp arg arg CPA leu leu leu pro gly thr
 asp his ala gly tyr arg asp arg ser val gly gly asp asp phe ser cys arg ala his
 301/101 331/111
 acg ttt tgg acc gac gat gtc cca ctg atc gtt ggg agc gcc gcc gat cgc gat gcc gtc
 thr phe trp pro asp asp val pro leu ile val gly ser ala gly asp arg asp ala val
 arg phe gly leu thr met cys his CPA ser leu gly ala pro ala ile ala met arg cys
 val leu ala CPA arg cys ala thr asp arg trp glu arg arg arg ser arg cys gly val
 361/121 391/131
 tcc aac cac cgt ccg gtc acc gac tgc cat ctc atc gcc ttg gcc gcc cgc tac ggg gcc
 ser asn his arg arg val thr asp cys his leu ile ala leu ala ala arg tyr gly gly
 pro thr thr val gly ser pro thr ala ile ser ser pro trp pro arg ala thr gly ala
 glu pro pro ser gly his arg leu pro ser his arg leu gly arg ala leu arg gly pro
 421/141 451/151
 cgg ttg gtc aca ttc gat gcc gca ctg gcc gat tca cca tcc gca gcc ctc gtc gag gtc
 arg leu val thr phe asp ala ala leu ala asp ser ala ser ala gly leu val glu val
 gly trp ser his ser met pro his trp pro ile glu his pro glu ala ser ser arg cys
 val gly his ile arg cys arg thr gly arg phe ser ile arg arg pro arg arg gly val
 481/161 511/171
 ttg tag tca ccg ggg atg gcc gcc tgg cca gcc ctg cag gat ctg ccg gcc cag gcc ccc
 leu AMB ser pro gly met gly gly ser pro gly leu glu asp leu arg ala glu ala pro
 cys ser his arg gly trp ala ala arg glu ala cys arg ile cys gly arg arg arg pro
 val val thr gly asp gly arg leu ala arg pro ala gly ser ala gly ala gly ala pro
 541/181 571/191
 ccg gtc gga cac ccg cag gcc gac gct ttt gcc cca cgc gcc cag ctc gcc gct gct gcc
 pro val gly his arg glu ala asp ala phe gly pro arg ala glu leu gly ala ala gly
 arg ser asp thr gly arg pro thr leu leu ala his ala arg ser ser ala leu leu gly
 gly arg thr pro ala gly arg arg phe trp pro thr arg ala ala arg arg cys trp ala
 601/201 631/211
 ctc ggg ctc gcc gcc agc ccg ctc gaa aac cgt ggt gcc gcc gcc atc gtc gac gaa cca
 leu gly leu gly gly ser arg leu glu asn arg gly gly val gly ile val asp glu pro
 ser gly ser ala ala ala gly ser lys thr val val ala ser ala ser ser thr asn glu
 arg ala arg arg glu pro ala arg lys pro trp trp arg arg his arg arg arg thr arg

SEQ ID N° 15Q

FIGURE 15Q

FEUILLE DE REMPLACEMENT (REGLE 26)

55/185

661/231 691/231
 ggt gag ggc ggc ggc tag ata ggc gta ggt gta ttc ctg ggc gag ctt ggc ggt ttg gca
 gly glu gly gly gly AMB ile ala val gly val phe leu gly glu leu ala gly leu ala
 val arg ala ala ala arg AMB arg AMB val tyr ser trp ala ser leu arg val trp gin
 OFA gly arg arg leu asp ser gly arg cys ile pro gly arg ala cys gly phe gly arg
 721/241 751/251
 gaa cac gat cgg cac gtt ggg aaa gcc gat ctg caa ttc gcc cag ccc atc gcc gat cgc
 glu his asp arg his val gly lys ala asp leu gln phe gly gln pro ile gly asp arg
 asn thr ile gly thr leu gly lys pro ile cys asn ser ala ser pro ser ala ile ala
 thr arg ser ala arg trp glu ser arg ser ala ile arg pro ala his arg arg ser pro
 781/261 811/271
 cgt cgg ggc ggc gaa gga gtc cgc gaa gat ctg cga gta ggc gtc ctc gac cac cac gcc
 arg arg ala gly glu gly val arg glu asp leu arg val ala val leu asp his his gly
 val gly arg ala lys glu cys ala lys ile ser glu AMB arg ser ser thr thr thr ala
 ser gly gly arg arg ser ala arg arg ser pro ser ser gly pro arg pro pro arg arg
 841/281 871/291
 gcc cgg tgg cag cgc ggt cag ttc ggt cag gta ttt cag gtc gcc gtt cag cac gcc
 gly pro trp gln arg gly gln phe gly gln leu val phe gln val ala val gln his ala
 ala arg gly ser ala ala ser ser val ser trp tyr phe arg leu pro phe ser thr pro
 pro val ala ala arg pro val arg ser val gly ile ser gly cys arg ser ala arg gln
 901/301 931/311
 aga agt aag gtc cgc caa cgc ttt acg ctg gac gcc cag gag ttg gcc gcc cac ttt
 arg ser lys val arg gln arg phe thr leu asp gly arg his glu leu ala gly his phe
 glu val arg ser ala asn ala leu arg ser thr ala ala thr ser trp pro ala thr phe
 lys OCH gly pro pro thr leu tyr ala arg arg pro pro arg val gly arg pro leu ser
 961/321 991/331
 cag gcc gta gtc gcc gca ggc cag gcc ttc cgg cgt cgt ctt gcc ggc ttt gtc gcc aaa
 gln ala val val ala ala gly gln gly phe pro arg arg leu arg gly phe val gly lys
 arg pro AMB ser pro gln gly arg ala ser arg val val phe ala gly leu ser ala lys
 gly arg ser arg arg arg ala gly leu pro ala ser ser ser arg val cys arg gln arg
 1021/341 1051/351
 ggt gta ggc gta gcc ttc gtc gcc gtc gac gat gtc cag ctg gcc gat gcc gcc gcc
 gly val gly val ala phe val gly val asp asp asp val gln leu gly asp ala gly gly
 val AMB gly AMB arg ser trp ala ser thr thr met cys ser ser gly met pro ala ala
 cys arg gly ser val arg gly arg arg arg arg cys ala ala arg gly cys arg arg arg
 1081/361 1111/371
 gcc gcc ggt ggc ggt gcc cac gcc cgg cgc cga ctg ttt gcc cgt ttt gcc ggt ctg cca
 ala gly gly gly gly ala his ala arg pro arg leu phe ala arg phe gly ala leu pro
 arg ala val gly val arg thr pro gly arg asp cys leu arg val leu gly leu cys gln
 gly arg trp gly cys ala arg pro ala ala thr val cys ala phe trp gly ser ala arg
 1141/381 1171/391
 gaa cac cac ctg gcc gcc gcc cgc cat ggt gtc cac cag ttg cga tgg gtc ctc cgc cgc
 gla his his leu ala ala ala arg his gly val his gln leu arg ser val leu pro arg
 asn thr thr trp arg pro arg ala met val cys thr ser cys asp arg phe ser arg ala
 thr pro pro gly gly arg ala pro trp cys ala pro val ala ile gly ser pro ala arg
 1201/401 1231/411
 gcc gcc gcc gac gac gtc gat gcc cgc gcc cgg gcc ggt gca ggt ggc tag ctg gac cgc
 ala gly gly asp asp val asp gly arg ala pro ala ala ala ala ala AMB leu asp pro
 arg ala ala thr thr ser met ala ala pro arg arg leu gln leu arg ser ser thr arg
 gly arg arg arg arg arg trp pro arg pro gly gly cys ser cys val ala arg pro gly
 1261/421 1291/431
 gtc gac gat gcc gcc gtc gcc gcc cca gtc gcc gat gtc gag gcc atg gcc ala cag cgc
 val asp asp asp gly val gly gly pro val gly asp val glu ala met ala ile gln arg
 ser thr thr thr gly ser ala gly gln ser ala met ser arg arg trp gln tyr ser ala
 arg arg arg arg gly arg arg ala ser arg arg cys arg gly asp gly asn thr ala pro

SEQ ID N° 15Q (suite 1)

FIGURE 15Q (suite 1)

56/185

1321/441 1381/481
 ctt ggt ggg cgg cca cac gtc tga ggt ggc gaa gac cag tcc cgc gcc cac egg cag cgg
 leu gly ala arg pro his val cfa gly gly glu asp gln ser arg ala his arg gln pro
 leu val arg gly his thr ser glu val ala lys thr ser pro ala pro thr gly ser arg
 trp cys ala ala thr arg leu arg trp arg arg pro val pro arg pro pro ala ala gly
 1381/461 1411/471
 gat cag gta ggg cag ggc cga gtc ttc agc ggg gtt ggc ggc gac gag cag ctc cac aga
 asp gln val gly gln ala arg val phe ser gly val gly gly asp glu gln leu his arg
 ile arg amb gly arg arg glu ser ser ala gly leu ala ala thr ser ser ser thr glu
 ser gly arg ala gly ala ser leu gln arg gly trp arg arg arg ala ala pro gln ser
 1441/481 1471/491
 gtg tga ggg tac ggg cgg cgt acg gca acg gtg aag cag gca ctc cga cga acc cct cgt
 val cfa gly tyr gly arg arg thr ala thr val lys gln ala leu arg arg thr his arg
 cys glu gly thr gly gly val arg gln arg cfa ser arg his ser asp glu pro ile val
 val arg val arg ala ala tyr gly asn gly glu ala gly thr pro thr asn pro ser ser
 1501/501
 cac gtc gas ggg gca ggt ga
 his val glu gly ala gly
 thr ser lys gly gln val
 arg arg arg gly arg cfa

SEQ ID N° 15Q (suite 2)

FIGURE 15Q (suite (2))

31/11
 TGC GCA TGC CGA CCA GTC TGG TTG GGC GGA GTT CGT TTG TTC GCG ATT GCC TCA ACG ATT
 cys ala cys arg pro val trp leu ala gly val arg leu phe ala ile ala ser thr ile
 61/21 91/31
 CGA TAT AAC CAC TCT AGT CAC ATC AAC CAC ACT CGT ACC ATC GAG COT GTC GGT TCA TCC
 arg tyr asn his ser ser his ile asn his thr arg thr ile gln arg val gly ser cys
 121/41 151/51
 CAT GCA TTC GCG ACC GCG GGA GCC GGC GAA CCC GCG CCC ACA CAT AAT CCA GAT TGA GGA
 his ala phe ala thr ala gly ala gly gln pro gly ala thr his asn pro asp cfa gly
 181/61 211/71
 GAC TTC COT GCC GAA CCG ACG CCG ACG CAA GCT TTC GAC ACC CAT GAG CCG GGT CCG CCG
 asp phe arg ala glu pro thr pro thr gln ala phe asp ser his glu arg gly arg arg
 241/81 271/91
 CCT GGC AGT TGC AAG TCC TTG TGC ATA TTT TCT TGT CTA CGA ATC AAC CGA AAC GAC CGA
 pro gly ser cys lys ser leu cys ile phe ser cys leu arg ile asn arg asn asp arg
 301/101 331/111
 GCG GCC CGA GCA CCA TGA ATT CAA GCA GGC GGC GGT GTT GAC CGA CCT GCC CCG CGA GCT
 ala ala arg ala pro cfa ile gln ala gly gly gly val asp arg pro ala arg arg ala
 361/121 391/131
 GAT GTC CCG GCT ATC GCA GGG GTT GTC CCA GTT CCG CAT C
 asp val arg ala ile ala gly val val pro val arg asp

SEQ ID N° 16A

FIGURE 16A

57/185

32/11
 GCG CAT GCC GAC CAG TGT GGT TGG CCG GAG TTC GTT TGT TCG CGA TTG CCT CAA CGA TTC
 ala his ala asp gln cys gly trp pro glu phe val cys ser arg leu pro gln arg phe
 62/21
 GAT ATA ACC ACT CTA GTC ACA TCA ACC ACA CTC GTA CCA TCG AGC GTG TGG GTT CAT GCC
 asp ile thr thr leu val thr ser thr thr leu val pro ser ser val trp val his ala
 122/41
 ATG CAT TCG CGA CCG CCG GAG CCG GCG AAC CCG GCG CCA CAC ATA ATC CAG ATT GAG GAG
 met his ser arg pro arg glu pro ala asn pro ala pro his ile ile gln ile glu glu
 182/61
 ACT TCC GTG CCG AAC CGA CCG CGA CCG AAG CTT TCG ACA GCC ATG AGC GCG GTC GCC GCC
 thr ser val pro asn arg arg arg arg lys leu ser thr ala met ser ala val ala ala
 242/81
 CTG GCA GTT GGA AGT CCT TGT GCA TAT TTT CTT GTC TAC GAA TCA ACC GAA ACG ACC GAG
 leu ala val ala ser pro cys ala tyr phe leu val tyr glu ser thr glu thr thr glu
 302/101
 CCG CCC GAG CAC CAT GAA TTC AAG CAG GCG GCG GTG TTG ACC GAC CTG CCC GGC GAG CTG
 arg pro glu his his glu phe lys gln ala ala val leu thr asp leu pro gly glu leu
 362/121
 ATG TCC GCG CTA TCG CAG GCG TTG TCC CAG TCC GCG ATC
 met ser ala leu ser gln gly leu ser gln phe gly ile
 392/131

SEQ ID N° 16B

FIGURE 16B

33/11
 CGC ATG CCG ACC AGT GTG GTT GGC CCG AGT TCG TTT GTT CCG GAT TGC CTC AAC GAT TCG
 arg met pro thr ser val val gly arg ser ser phe val arg asp cys leu asn asp ser
 63/21
 ATA TAA CCA CTC TAG TCA CAT CAA CCA CAC TCG TAC CAT CGA GCG TGT GCG TTC ATG CCA
 ile och pro leu amb ser his gln pro his ser tyr his arg ala cys gly phe met pro
 123/41
 TGC ATT CCG GAC CCG GCG AGC CCG CGA ACC CCG CCG CAC ACA TAA TCC AGA TTG AGG AGA
 cys ile arg asp arg gly ser arg arg thr arg arg his thr och ser arg leu arg arg
 183/61
 CTT CCG TGC CGA ACC GAC GGC GAC GCA AGC TTT CGA CAG CCA TGA CCG CCG TCG CCG CCC
 leu pro cys arg thr asp ala asp ala ser phe arg gln pro opa ala arg ser pro pro
 243/81
 TGG CAG TTG CAA GTC CTT GTG CAT ATT TTC TTG TCT ACC AAT CAA CCG AAA CGA CCG ACC
 trp gln leu gln val leu val his ile phe leu ser thr asn gln pro lys arg pro ser
 303/101
 GGC CCG AGC ACC ATG AAT TCA AGC AGG CCG CCG TGT TGA CCG ACC TGC CCG GCG AGC TGA
 gly pro ser thr met asn ser ser arg arg arg cys opa pro thr cys pro ala ser opa
 363/121
 TGT CCG CCG TAT CCG AGG GGT TGT CCC AGT TCG GGA TC
 cys pro arg tyr arg arg gly cys pro ser ser gly
 393/131

SEQ ID N° 16C

FIGURE 16C

58/185

31/11
 GCG GGC CAC CGA TCA GTC GAT CCG GTG GTT TCC GCT CCA TCA GCC CGG AAT TGA GGT GCC
 ala gly his arg ser val asp arg val val ser ala pro ser ala arg asn OPA gly ala
 91/21
 GCA GTG ACG ACA CCA GCG CAG CAC GCG CCG TTG GTG TTT CCC TCT GTT GCT TTC CCG TCC
 ala val thr thr pro ala gln asp ala pro leu val phe pro ser val ala phe pro ser
 121/41
 GGC TCG CCT TTT TTT CAT CAA CGT TGG ACT GCC GCA GTG GCG ATC TTG CTC GCC GCG GTG
 gly ser pro phe phe his gln arg trp thr ala ala val ala met leu val ala gly val
 181/61
 TTC GGT CAC CTG ACG GTC GGG ATG TTC CTT GCG TCT CCG GTT GCT GCT GCG TTT GCT CAA
 phe gly his leu thr val gly met phe leu gly ser arg val ala ala gly phe ala gln
 241/81
 TGC CCT GCT GGT GCG GCG TTC GGC CGA GTC GAT CAC CCG CAA AGA GCA CCC GTT AAA ACG
 cys pro ala gly ala ala phe gly arg val asp his arg gln arg ala pro val lys thr
 301/101
 GTC GAT GGC CCT CAA CTC GGC ATC GCG ACT GGC GAT TAT CAC CAT GCC TCG GGC TGA TC
 val asp gly pro gln leu gly ile ala thr gly asp tyr his his ala ser gly OPA

SEQ ID N° 17A

FIGURE 17A

32/11
 CCG GCC ACC GAT CAG TCG ATC GCG TCG TTT CCG CTC CAT CAG CCC GGA ATT GAG GTG CCG
 arg ala thr asp gln ser ile gly trp phe pro leu his gln pro gly ile glu val pro
 82/21
 CAG TGA CGA CAC CAG CCG AGG ACG CCG CGT TGG TGT TTC CCT CTG TTG CTT TCC COT CCG
 gln OPA arg his gln arg arg thr arg arg trp cys phe pro leu leu leu ser arg pro
 122/41
 GCT CCG CTT TTT TTC ATC AAC GTT GGA CTG CCG CAG TGG CGA TGT TGG TCG CCG GCG TGT
 ala arg leu phe phe ile asn val gly leu pro gln trp arg cys trp ser pro ala cys
 182/61
 TCG CTC ACC TGA CCG TCG GGA TGT TCC TTG GGT CTC GCG TTG CTG CTG GGT TTG CTC AAT
 ser val thr OPA arg ser gly cys ser leu gly leu gly leu leu leu gly leu leu asn
 242/81
 GCC CTG CTG GTG CCG CGT TCG GCC GAG TCG ATC ACC GCC AAA GAG CAC CCG TTA AAA CCG
 ala leu leu val arg arg ser ala glu ser ile thr ala lys glu his pro leu lys arg
 302/101
 TCG ATG GCC CTC AAC TCG GCA TCG CGA CTG GCG ATT ATC ACC ATG CCT CCG GCT GAT C
 ser met ala leu asn ser ala ser arg leu ala ile ile thr met pro arg ala asp

SEQ ID N° 17B

FIGURE 17B

59/185

33/11
 GGG CCA CCG ATC AGT CGA TCG GGT GGT TTC CGC TCC ATC AGC CCG GAA TTG AGG TCC CGC
 gly pro pro ile ser arg ser gly gly phe arg ser ile ser pro glu leu arg cys arg
 63/21
 AGT GAC GAC ACC AGC GCA GGA CGC GCC GTT GGT GTT TCC CTC TGT TGC TTT CCC GTC CGC
 ser asp asp thr ser ala gly arg ala val gly val ser leu cys cys phe pro val arg
 123/41
 CTC GCC TTT TTT TCA TCA ACG TTG GAC TGC CGC AGT CGC GAT GTT GGT CGC CGC COT GTT
 leu ala phe phe ser ser thr leu asp cys arg ser gly asp val gly arg arg arg val
 183/61
 CGG TCA CCT GAC GGT CGC GAT GTT CCT TGG GTC TCG GGT TGC TGC TCG GTT TGC TCA ATG
 arg ser pro asp gly arg asp val pro trp val ser gly cys cys trp val cys ser met
 243/81
 CCC TGC TGG TGC GGC GTT CGC CGC AGT CGA TCA CCG CCA AAG AGC ACC COT TAA AAC GGT
 pro cys trp cys gly val arg pro ser arg ser pro pro lys ser thr arg CCH asn gly
 303/101
 CCA TGG CCC TCA ACT CCG CAT CGC GAC TGG CCA TTA TCA CCA TGC CTC GGC CTG ATC
 arg trp pro ser thr arg his arg asp trp arg leu ser pro cys leu gly leu ile

SEQ ID N° 17C

FIGURE 17C

partie de la séquence nucléotidique de seq17A

1/1
 31/11
 gcc tag aac ccc gaa gga gac ctc gcg ggt tgc cgg ccc ccc gcc cac cgg atg cgt atc
 gly AMB asn pro glu gly asp leu ala gly cys arg pro pro ala his arg met arg ile
 61/21
 cgg tcc cgc cga ttc acg acc gac ata ggg aga tac ccc ttg ggt gat tcc ggt gcg acg
 arg ser arg arg phe thr thr asp ile gly ser tyr pro leu gly asp ser gly ala thr
 121/41
 act gcg ata cgc tcc gcg gcc cac cga tca gtc gat cgg ctg gtt tcc ggt cca tca gcc
 thr ala ile arg ser ala gly his arg ser val asp arg val val ser ala pro ser ala
 181/61
 cgg aat tga ggt gcc gca gtg acg aca cca gcg cag gac gcg cgg ttg gtg ttt ccc tat
 arg asn CFA gly ala ala val thr thr pro ala gln asp ala pro leu val phe pro ser
 241/81
 gtt gct ttc cgt ccg gtt agc ctt ttt ttc atc aac gtt gga ctg gcc gca gtg gcg atg
 val ala phe arg pro val arg leu phe phe ile asn val gly leu ala ala val ala met
 301/101
 tgg gtc gcc gcc gtg ttc ggt cac atg acg ctg ggg atg ttc ttg ggt ctg ggg ttg ctg
 leu val ala gly val phe gly his leu thr val gly met phe leu gly leu gly leu leu
 361/121
 ctg ggt ttg ctg aat gcc ctg ctg gty cgg cgt tcc gcc gag tcc atc acc gcc aaa gag
 leu gly leu leu asn ala leu leu val arg arg ser ala glu ser ile thr ala lys glu
 421/141
 cac ccg tta aaa cgg tcc atg gcc ctg aac tcc gca tcc cga ctg gcg att atc acc atc
 his pro leu lys arg ser met ala leu asn ser ala ser arg leu ala ile ile thr ile
 481/161
 ctg ggg ctg atc
 leu gly leu ile

SEQ ID N° 17A'

FIGURE 17A'

FEUILLE DE REMPLACEMENT (REGLE 26)

60/185

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1/1                               31/11
gct aga acc ccg aag gag acc tgg cgg gtt gcc gcc acc cgg acc atc cga tgc gta tcc
ala arg thr pro lys glu thr ser arg val ala gly pro arg pro ile gly cys val ser
61/21                               91/31
ggc cgc gcc gat tca cga ccg aca tag cga gct acc cct tgg gtc atc ccg gtc cga cga
gly arg ala asp ser arg pro thr AAA gly ala thr pro trp val ile pro val arg arg
121/41                               151/51
ctg cga tac gct cgg cgg gcc acc gat cag tgg atc cgg tgg ttc ccg ctc cat cag acc
leu arg tyr ala arg arg ala thr asp glc ser ile gly trp phe pro leu his glc pro
181/61                               211/71
gga att gag gtg ccg cag tga cga cac cag cgc agc arg cgc cgt tgg tgt ttc acc atg
gly ile glu val pro glc OFA arg his glc arg arg thr arg arg trp cys phe pro leu
241/81                               271/91
ttg ctt tcc gtc cgg ttc gcc ttt ttt tca tca acc ttg gac tgg ccg cag tgg cga tgt
leu leu ser val arg phe ala phe phe ser ser thr leu asp trp pro glc trp arg cys
301/101                               331/111
tgg tgg ccg gcc tgt tgg gtc acc tga cgg tgg gga tgt tct tgg gtc tgg ggt tgc tgc
trp ser pro ala cys ser val thr OFA arg ser gly cys ser trp val ser gly cys cys
361/121                               391/131
tgg gtt tgc tca atg ccc tgc tgg tgc gcc gtt cgg ccg agt cga tca ccg cca aag agc
trp val cys ser met pro cys trp cys gly val arg pro ser arg ser pro pro lys ser
421/141                               451/151
acc cgt taa aac ggt cga tgg ccc tca act cgg cat cgc gac tgg cga tta tca cca tcc
thr arg OCH aac gly arg trp pro ser thr arg his arg asp trp arg leu ser pro ser
481/161
tgg gcc tga ta
ser gly OFA

```

SEQ ID N° 17B'

FIGURE 17B'

```

1/1                               31/11
cta gaa ccc cga agg aga cct cgc ggg ttg ccg gcc acc gcc cca tgg gat ggc tat ccg
leu glu pro arg arg arg pro arg gly leu pro ala pro gly pro ser asp ala tyr pro
61/21                               91/31
gtc gcc ccg att cac gac cga cat agg gag cta ccc ctt ggg tga ttc ccg tgc gac gac
val ala pro ile his asp arg his arg glu leu pro leu gly OFA phe arg cys asp asp
121/41                               151/51
tgc gat acg ctc gcc ggg cca ccg atc agt cga tgg ggt ggt ttc cgc tcc atc agc ccg
cys asp thr leu gly gly pro pro ile ser arg ser gly gly phe arg ser ile ser pro
181/61                               211/71
gaa tgg agg tgc cgc agt gac gac acc agc gcc gga cgc gcc gtt ggt gtt tcc ctc tgt
glc leu arg cys arg ser asp asp thr ser ala gly arg ala val gly val ser leu cys
241/81                               271/91
tgc ttt ccg tcc ggt tgg cct tct ttt cat caa cgt tgg act gcc cgc agt gcc gat gtt
cys phe pro ser gly ser pro phe phe his glc arg trp thr gly arg ser gly asp val
301/101                               331/111
ggc cgc ccg cgt gtt cgg tca cct gac ggt cgg gat gtt cct ggg tct ccg gtt gct gat
gly arg arg arg val arg ser pro asp gly arg asp val leu gly ser arg val ala ala
361/121                               391/131
ggg ttt gct caa tgc cct gct ggt gcc gcc ttc gcc cga gtc gat cac cgc caa aga gca
gly phe ala glc cys pro ala gly ala ala phe gly arg val asp his arg glc arg ala
421/141                               451/151
ccc gtt aca acg gtc gat gcc cct caa ctc gcc atc gcc act gcc gat tat tcc cat cct
pro val lys thr val asp gly pro glc leu gly ile ala thr gly asp tyr his his pro
481/161
cgg gct gat c
arg ala asp

```

SEQ ID N° 17C'

61/185

séquence Rv1303 prédite par Cole et al. (Nature 393:537-544) et contenant partiellement Seq17A'

```

1/1                                     31/11
atg acg aca cca gcg cag gac gag cag ttg ggg ttt ccc tct gtt gcc ttc cgt ccg gtt
met thr thr pro ala gln asp ala pro leu val phe pro ser val ala phe arg pro val
51/21                                     91/31
cgc ctt ttt ttc atc aac gtt gga ctg gcc gca gtg gag arg ttg gtc gcc ggc gtg ttc
arg leu phe phe ile asn val gly leu ala ala val ala met leu val ala gly val phe
121/41                                     151/51
ggg aac ctg acg gtc ggg atg ttc ttg ggt ctc ggg ttg ctg ctg ggt ttg ctc aat gcc
gly his leu thr val gly met phe leu gly leu gly leu leu leu gly leu leu asn ala
181/61                                     211/71
ctg ctg gtg cgg cgt tog gcc gag tog atc acc gcc aaa gag cac ccg tta aaa cgg tog
leu leu val arg arg ser ala glu ser ile thr ala lys glu his pro leu lys arg ser
241/81                                     271/91
atg gcc ctc aac tgg gca tgg cga ctg gcg att atc acc atc ctc ggg ctg atc atc gcc
met ala leu asn ser ala ser arg leu ala ile ile thr ile leu gly leu ile ile ala
301/101                                    331/111
tac att ttc cgg ccc got gga ttg ggc gtc gtg ttc ggg ctg gca ttc ttc cag gtg ctg
tyr ile phe arg pro ala gly leu gly val val phe gly leu ala phe phe gln val leu
361/121                                    391/131
ctg gtg gca acg acg gcc ctg ccg gtc ctg aag aag ctg cgc act gcc acc gag gaa ccg
leu val ala thr thr ala leu pro val leu lys lys leu arg thr ala thr glu glu pro
421/141                                    451/151
gtc gaa act tat tct tcc aat gcc cag acc ggg gga tog gaa gga agg agc gcc agc gat
val ala thr tyr ser ser asn gly gln thr gly gly ser glu gly arg ser ala ser asp
481/161
gac tga
asp OGA

```

SEQ ID N° 17D

FIGURE 17D

Orf d'après Cole et al. (Nature 393:537-544) et contenant Rv1303

```

1/1                                     31/11
tga ggt gcc gca gtg acg aca cca ggg cag gac gag cag ttg ggg ttt ccc tct gtt gcc
OGA gly ala ala val thr thr pro ala gln asp ala pro leu val phe pro ser val ala
61/21                                     91/31
ctc cgt ccg gtt cgc ctt ttt ttc atc aac gtt gga ctg gcc gca gtg gag atg ttg gtc
phe arg pro val arg leu phe phe ile asn val gly leu ala ala val ala met leu val
121/41                                     151/51
gcc gcc gtg ttc ggt cac ctg acg gtc ggg arg ttc ttg ggt ctc ggg ttg ctg ctg ggt
ala gly val phe gly his leu thr val gly met phe leu gly leu gly leu leu leu gly
181/61                                     211/71
ttg ctc aat gcc ctg ctg gtc cgg cgt tog gcc gag tog atc acc gcc aaa gag cac ccg
leu leu asn ala leu leu val arg arg ser ala glu ser ile thr ala lys glu his pro
241/81                                     271/91
tta aaa cgg tog atg gcc ctc aac tgg gca tgg cga ctg gcg att atc acc atc ctc ggg
leu lys arg ser met ala leu asn ser ala ser arg leu ala ile ile thr ile leu gly
301/101                                    331/111
ctg atc atc gcc tac att ttc cgg ccc gcc gga ctg ggc gtc gtg ttc ggg ctg gca ttc
leu ile ile ala tyr ile phe arg pro ala gly leu gly val val phe gly leu ala phe
361/121                                    391/131
ctc cag gtg ctg ctg gtg gca acg acg gcc ctg ccg gtc ctg aag aag ctg cgc act gcc
phe gln val leu leu val ala thr thr ala leu pro val leu lys lys leu arg thr ala
421/141                                    451/151
acc gag gaa ccg gtc gca act tat tct tcc aat gcc cag acc ggg gga tog gaa gga agg
thr glu glu pro val ala thr tyr ser ser asn gly gln thr gly gly ser glu gly arg
481/161
agg gcc agc gat gac tga
ser ala ser asp asp OGA

```

SEQ ID N° 17F

62/185

31/11
 GTC GAA CAG GTA CGG AAG GCG CCG TCG GTC GCT CCG TCC GGT GGT ATC TCG TGT TCA GCC
 val glu gln val arg lys ala pro ser val ala arg ser ala gly ile ser cys ser ala
 61/21
 ACC CAG CCG CCG TTA ACC TGG CCG AAC AGG TCG TCT TGG GGT CCG GCA TCA CCG TCG ATG
 ser gln arg pro leu thr trp pro asn arg ser ser trp gly arg ala ser ala ser met
 121/41
 TGG CTC AAG TCG ATA CCC GAG GGG ATG GCA AGT GTC ACC CCG CCA TCC TTC CAC CTC TTT
 trp leu arg ser ile pro glu gly met ala ser val thr pro pro ser phe his leu phe
 181/61
 TCG GGT GCA ACC ATC GGG CCA TGC CTG ACC GGG ACC AGA GCC AGC CAC CCG CCC AAG AAG
 ser gly ala thr ile gly pro cys leu thr gly ser arg ala ser his arg pro lys lys
 241/81
 ATG CCG AAG ACC ACT CCG GGC CCG ACC CCG CCG AAG CCG CCG CCG CCG AAC CCA AAT CAT
 met arg lys thr thr arg gly pro thr pro arg arg pro pro arg pro asn pro asn his
 301/101
 CAG CCG GTC CCG ATG TTC TCG ACC TAC GGT ATC GCC TCG ACA CTA CTC GCG GTC CTA TCG
 gln pro val pro met phe ser thr tyr gly ile ala ser thr leu leu gly val leu ser
 361/121
 GTC GCC GCG GTC GTC CTC GGT GCG ATG ATC
 val ala ala val val leu gly ala met ile

SEQ ID N° 18A

FIGURE 18A

32/11
 TCG AAC AGG TAC GGA AGG GCG CCG CCG TCG CTC GGT CCG CTG GTA TGT CGT GTT CAG CCA
 ser asn arg tyr gly arg arg arg arg ser leu gly pro leu val ser arg val gln pro
 62/21
 GCC AGC GCG CCG TAA CCG GCG CCA ACA GGT CCG CTT GGG GTC GGG CAT CAG CCG CGA TGT
 ala ser gly arg GCH arg gly arg thr gly arg leu gly val gly his gln arg arg cys
 122/41
 GGC TCA GGT CGA TAC CCG AGG GGA TGG CAA GTG TCA CCC CCG CAT CCG TCC ACC TCT TTT
 gly ser gly arg tyr pro arg gly trp gln val ser pro arg his pro ser thr ser phe
 182/61
 CCG GTC CAA CGA TCG GGC CAT GCG TGA CCG GGA GCA GAG CCA GCC ACC GCG CCA AGA AGA
 arg val gln arg ser gly his ala GFA arg gly ala glu pro ala thr gly pro arg arg
 242/81
 TCG GGA AGA CGA CTC GCG GCG CCA CCG CCG GGA GCG CCG CCG GGC CGA ACC CAA ATC ATC
 cys gly arg arg leu ala ala arg arg arg gly gly arg arg gly arg thr gln ile ile
 302/101
 AGC CCG TCC CGA TGT TCT CGA CCG ACC GTA TCG CCG CGA CAC TAC TCG GCG TCC TAT CCG
 ser arg ser arg cys ser arg pro thr val ser pro arg his tyr ser ala cys tyr arg
 362/121
 TCG CCG CCG TCG TCG TGG GTC CGA TGA TC
 ser pro arg ser cys trp val arg GFA

SEQ ID N° 18B

FIGURE 18B

FEUILLE DE REMPLACEMENT (REGLE 26)

63/185

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3/1                               33/11
CGA ACA GGT ACG GAA GGC GGC GTC GGT CGC TCG CTC GGC TGG TAT CTC GTG TTC AGC CAG
arg thr gly thr glu gly ala val gly arg ser val arg trp tyr leu val phe ser gln
63/21                               93/31
CCA GCG GCC GTT AAC GTG GCC GAA CAG GTC GTC TTG GGG TCG GGC ATC AGC GTC GAT GTC
pro ala ala val asn val ala glu gln val val leu gly ser gly ile ser val asp val
123/41                               153/51
GCT CAG GTC GAT ACC CGA GGG GAT GGC AAG TGT CAC CCC GGC ATC CTT CCA CCT CTT TTC
ala gln val asp thr arg gly asp gly lys cys his pro ala ile leu pro pro leu phe
183/61                               213/71
GGG TGC AAC GAT CCG GCC ATG CCT GAC GGG GAG CAG AGC CAG CCA CCG GCC CAA GAA GAT
gly cys asn asp arg ala met pro asp gly glu gln ser gln pro pro ala gln glu asp
243/81                               273/91
CGG GAA GAC GAC TCG CCG CCC GAC GCC GCG GAG GCC GCC GCG GCC GAA CCC AAA TCA TCA
ala glu asp asp ser arg pro asp ala ala gln ala ala ala glu pro lys ser ser
303/101                               333/111
GCC GGT CCC GAT GTT CTC GAC CTA CCG TAT CCG CTC GAC ACT ACT CCG CGT GGT ATC GGT
ala gly pro asp val leu asp leu arg tyr arg leu asp thr thr arg arg ala ile gly
363/121
CGC CGC GGT CGT GCT GGG TGC GAT GAT C
arg arg gly arg ala gly cys asp asp

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SEQ ID N° 18C

FIGURE 18C

partie de la séquence nucléotidique de seq18A

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1/1                               31/11
GAA GGC GGC CTC GGT CGC TCG GTC GGC TGG TAT CTC GTC TTC AGC CAG CCA GCG GCC GGT
glu gly ala val gly arg ser val arg trp tyr leu val phe ser gln pro ala ala val
61/21                               91/31
AAC GTG GCC GAA CAG GTC GTC TTG GGG TCG GGC ATC AGC GTC GAT GTG GCT CAG GTC GAT
asn val ala glu gln val val leu gly ser gly ile ser val asp val ala gln val asp
121/41                               151/51
ACC CGA GCG GAT GGC AAG TGT CAC CCC GCC ATC CTT CCA CCT CTT TTC GCG TGC AAC GAT
thr arg gly asp gly lys cys his pro ala ile leu pro pro leu phe gly cys asn asp
181/61                               211/71
CGG GCC ATG CCT GAC GGG GAG CAG AGC CAG CCA CCG GCC CAA GAA GAT GCG GAA GAC GAC
arg ala met pro asp gly glu gln ser gln pro pro ala gln glu asp ala glu asp asp
241/81                               271/91
TCG CCG CCC GAC GCC GCG GAG GCC GCC GCG GCC GAA CCC AAA TCA TCA GCG GGT CCG ATG
ser arg pro asp ala ala gln ala ala ala ala gln pro lys ser ser ala gly pro met
301/101                               331/111
TTC TCG ACC TAC GGT ATC GGC TCG ACA CTA CTC GCG GTG CTA TCG GTC GCC GCG CTC GTC
phe ser thr tyr gly ile ala ser thr leu leu gly val leu ser val ala ala val val
361/121
CTG GGT CCG ATG ATC
leu gly ala met ile

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SEQ ID N° 18A'

FIGURE 18A'

64/185

1/1 31/11
 CCG AAG GCG CCG TCG GTC GCT CCG TCC GCT GGT ATC TCG TGT TCA GCC AGC CAG CCG CCG
 arg lys ala pro ser val ala arg ser ala gly ile ser cys ser ala ser gln arg pro
 61/21 91/31
 TTA ACG TGG CCG AAC AGG TCG TCT TGG GGT CCG GCA TCA GCG TCG ATG TGG CTC AGG TCG
 leu thr trp pro asn arg ser ser trp gly arg ala ser ala ser met trp leu arg ser
 121/41 131/51
 ATA CCC GAG GGG ATG GCA AGT GTC ACC CCG CCA TCC TTC CAC CTC TTT TCG GGT GCA ACG
 ile pro gln gly met ala ser val thr pro pro ser phe his leu phe ser gly ala thr
 181/61 211/71
 ATC GGG CCA TGC CTG ACG GGG AGC ACA GCC AGC CAC CGG CCC AAG AAG ATG CCG AAG ACG
 ile gly pro cys leu thr gly ser arg ala ser his arg pro lys lys met arg lys thr
 241/81 271/91
 ACT CGC GGC CCG ACG CCG CCG AGG CCG CCG CCG CCG AAC CCA AAT CAT CAG CCG GTC CCA
 thr arg gly pro thr pro arg arg pro pro arg pro asn pro asn his gln pro val arg
 301/101 331/111
 TGT TCT CGA CCT ACG GTA TCG CCT CCA CAC TAC TCG CCG TGC TAT CCG TCG CCG CCG TCG
 cys ser arg pro thr val ser pro arg his tyr ser ala cys tyr arg ser pro arg ser
 361/121
 TGC TGG GTG CCA TGA TC
 cys trp val arg opa

SEQ ID N° 18B'

FIGURE 18B'

1/1 31/11
 GGA AGG GGC CGT CCG TCG CTC GGT CCG CTG GTA TCT CGT GTT CAG CCA GCC AGC GGC CGT
 gly arg arg arg arg ser leu gly pro leu val ser arg val gln pro ala ser gly arg
 61/21 91/31
 TAA CGT GGC CGA ACA GGT CGT CTT GGG GTC GGG CAT CAG CGT CCA TGT GGC TCA GGT CCA
 och arg gly arg thr gly arg leu gly val gly his gln arg arg cys gly ser gly arg
 121/41 151/51
 TAC CCG AGG GGA TGG CAA GTG TCA CCC CCG CAT CCT TCC ACC TCT TTT CCG GTG CAA CCA
 tyr pro arg gly trp gln val ser pro arg his pro ser thr ser phe arg val gln arg
 181/61 211/71
 TCG GGC CAT GGC TGA CCG GCA GCA GAG CCA GCC ACC GGC CCA AGA AGA TGC GCA AGA CCA
 ser gly his ala opa arg gly ala glu pro ala thr gly pro arg arg cys gly arg arg
 241/81 271/91
 CTC GCG GGC CCA CCG CCG GGA GGC CCG CCG GGC CCA ACC CAA ATC ATC AGC CCG TCC GAT
 leu ala ala arg arg arg gly gly arg arg gly arg thr gln ile ile ser arg ser asp
 301/101 331/111
 GTT CTC GAC CTA CCG TAT CCG CTC GAC ACT ACT CCG CGT GCT ATC GGT CCG CCG GGT CGT
 val leu asp leu arg tyr arg leu asp thr thr arg arg ala ile gly arg arg gly arg
 361/121
 GCT GCG TGC GAT GAT C
 ala gly cys asp asp

SEQ ID N° 18C'

FIGURE 18C'

65/185

séquence Rv0199 prédite par Cole et al. (Nature 393:537-544) et contenant seq18A'

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1/1                               31/11
atg cct gac ggg gag cag agc cag cca ccg gcc caa gaa gat gcg gaa gac gac tcg cgg
Met pro asp gly glu gln ser gln pro pro ala gln glu asp ala glu asp asp ser arg
61/21                               31/31
ccc gac gcc gcg gag gcc gcc gcg gcc gaa ccc aaa tca tca gcc ggt cgg arg ttc tcg
pro asp ala ala glu ala ala ala ala glu pro lys ser ser ala gly pro met phe ser
121/41                               151/51
acc tac ggt atc gcc tcg aca cta ctc gcc gtg cta tcg gtc gcc gcg gtc gtg ctg ggc
thr tyr gly ile ala ser thr leu leu gly val leu ser val ala ala val val leu gly
181/61                               211/71
gcg atg atc tgg tcc gca cac cgc gat gac tcc gcc gag cgt acc tac ctg acc cgg gtc
ala met ile trp ser ala his arg asp asp ser gly glu arg thr tyr leu thr arg val
241/81                               271/91
atg ctg acc gcc gct gaa tgg acg gcc gtg ctg atc aac atg aac gcc gac aac atc gat
met leu thr ala ala glu trp thr ala val leu ile asn met asn ala asp asn ile asp
301/101                               331/111
gcc agc ctg cag cga ctg cac gac gga acg gtc ggt cca ctc aac acc gac ttc gac gct
ala ser leu gln arg leu his asp gly thr val gly gln leu asn thr asp phe asp ala
361/121                               391/131
gtc gtg cag ccc tac cgg cag gtg gtg gag aag ttg cgg acg cac agc agc gcc agg atc
val val gln pro tyr arg gln val val glu lys leu arg thr his ser ser gly arg ile
421/141                               451/151
gag gcg gta gcg atc gat acg gtg caa cgc gag ctg gat acc cag tcc ggt gcc gcc cga
glu ala val ala ile asp thr val his arg glu leu asp thr gln ser gly ala ala arg
481/161                               511/171
ccg gta gta acc acg aac ttg cca ccg ttt gcc act cgc acc gac tcg gtg atg ctg gtc
pro val val thr thr lys leu pro pro phe ala thr arg thr asp ser val leu leu val
541/181                               571/191
gcg acg tcg gtc agt gag aac gcc gcc gcc aaa ccc cag acc gtg cac tgg aac ctg cgg
ala thr ser val ser glu asn ala gly ala lys pro gln thr val his trp asn leu arg
601/201                               631/211
ctc gat gtc tcc gat gtg gac gcc aag ctg atg atc tcc cgg ttg gag tcg att cga tga
leu asp val ser asp val asp gly lys leu met ile ser arg leu glu ser ile arg CBA

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SEQ ID N° 180

FIGURE 18D

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ORF d'après Cola et al. (Nature 393:537-544) et contenant Rv0199

1/1 31/11
 caa tcc gat gcc gga ttg ggt gaa atg cac caa gta acg ggt cga gtc ctt gga atc ggt
 oeh ser asp ala gly leu gly glu met his gln val thr gly arg val phe gly ile gly
 61/21 91/31
 atc gac ata gac tcc gat gcc gcc gcc cac gcc gga acg ttg cag agt gcc aag ggt gcc
 ile asp ile asp ser asp ala ala ala his ala gly thr leu gln ser ala lys gly gly
 121/41 151/51
 gcc caa ttc ggt ggc gtc gcc cgc gct gtc aat cgt gcc caa ttc gtc gtg cag cgg ttg
 gly gln phe gly gly val gly arg ala val asn arg gly gln phe val val gln arg leu
 181/61 211/71
 cac ccc tgc gcg ctg gac gcc ttc ctg gtc gag gaa gct gcc gta gag gtc gcc gat gcg
 his pro cys ala leu asp gly phe leu val glu gln ala gly val glu val ala asp ala
 241/81 271/91
 ctg cgc atc ggt gcc tac cgc agc acc tgc ttg gct gcc ctg gat gat cag gtc tgc cac
 leu arg ile gly ala tyr arg ser thr cys leu ala gly leu asp asp gln val ser his
 301/101 331/111
 ttg tgt ctg gcc gcg gtc gaa cag gat acg gaa gcc gcc gtc ggt cgc tgc gcc tgc
 leu cys leu gly ala val glu gln ala thr glu gly ala val gly arg ser val arg trp
 361/121 391/131
 tar ctg gtg ttc agc cag cca gcg gcc gtt aac gtg gcc gaa cag gtc gtc ttg ggg tgc
 tyr leu val phe ser gln pro ala ala val asn val ala glu gln val val leu gly ser
 421/141 451/151
 gcc atc agc gtc gat gtg gct cag gtc gat acc cga ggg gat gcc aag tgt cac ccc gcc
 gly ile ser val asp val ala gln val asp thr arg gly asp gly lys cys his pro ala
 481/161 511/171
 atc ctt cca cct ctt ttc ggg tgc aac gat cgg gcc atg cct gac ggg gag cag agc cag
 ile leu pro pro leu phe gly cys asn asp arg ala met pro asp gly glu gln ser gln
 541/181 571/191
 cca cgg gcc caa gaa gat gcg gaa gac gac tgc cgg ccc gcc gcc gcc gag gcc gcc gcc
 pro pro ala gln glu asp ala glu asp asp ser arg pro asp ala ala glu ala ala ala
 601/201 631/211
 gcc gaa ccc aaa tca tca gcc ggt cag atg ttc tgc acc cac ggt atc gcc tgc acc ata
 ala glu pro lys ser ser ala gly pro ser phe ser thr tyr gly ile ala ser thr leu
 661/221 691/231
 ctg gcc gtg cta tgc gtc gcc gcg gtc gtg ctg ggt gcg atg atc tgg ccc gca cac cgc
 leu gly val leu ser val ala ala val val leu gly ala met ile trp ser ala his arg
 721/241 751/251
 gat gac tcc gcc gag cgt acc tac ctg acc cgg gtc atg ctg acc gcc gct gaa tgg acg
 asp asp ser gly glu arg thr tyr leu thr arg val met leu thr ala ala glu trp thr
 781/261 811/271
 gcc gtg ctg atc aac atg aac gcc gac aac atc gat gcc agc ctg cag cga ctg cac gac
 ala val leu ile asn met asn ala asp asn ile asp ala ser leu gln arg leu his asp
 841/281 871/291
 gga aag gtc ggt caa ctg aac acc gac ttc gac gct gtc gtg cag ccc tac cgg cag gtg
 gly thr val gly gln leu asn thr asp phe asp ala val val gln pro tyr arg gln val
 901/301 931/311
 gtg gag aag ttg cgg acg cac agc agc gcc agg atc gag gcg gta gcg atc gat acg gtg
 val glu lys leu arg thr his ser ser gly arg ile glu ala val ala ile asp thr val
 961/321 991/331
 cac cgc gag ctg gat acc cag tcc ggt gcc gcc cga cgg gta gta acc acg aaa tgg cca
 his arg glu leu asp thr gln ser gly ala ala arg pro val val thr thr lys leu pro
 1021/341 1051/351
 cgg ttt gcc acc agc acc gac tgc gtg ctg ctg gtc gcc acc tgc gcc agt gag aac gcc
 pro phe ala thr arg thr asp ser val leu leu val ala thr ser val ser glu asn ala
 1081/361 1111/371
 gcc gcc aaa ccc cag acc gtg cac tgg aac ttg cgg ctg gat gtc tcc gat gtg gac gcc
 gly ala lys pro gln thr val his trp asn leu arg leu asp val ser asp val asp gly
 1141/381 1171/391
 aag ctg atg atc tcc cgg ttg gag tgc att cga tga
 lys leu met ile ser arg leu glu ser ile arg ORF

SEQ ID N° 18F

FIGURE 18F
 FEUILLE DE REMPLACEMENT (REGLE 26)

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31/11
 GTT GCG CAA CGG GGT GAG CAC CGA CGC GAT GAT GGC GCA ACT ATC GAA ACT GCA GGA CAT
 val ala gln arg gly gln his arg arg asp asp gly ala thr ile glu thr ala gly his
 61/21
 CGC CAA CGC CAA CGA CGG CAC TCG CGC GGT GGG CAC CCC TGG CTA TCA GGC CAG CGT CGA
 arg gln arg gln arg arg his ser arg gly gly his pro trp leu ser gly gln arg arg
 121/41
 CTA TGT GGT AAA CAC ACT GCG CAA CAG CGG TTT TGA TGT GCA AAC CCC GGA GTT CTC CSC
 leu cys gly lys his thr ala gln gln arg phe opa cys ala asn pro gly val leu arg
 181/61
 TCG CGT GTT CAA GGC CGA AAA AGG GGT GGT GAC CCT CGG CGG CAA CAC CGT GGA GCC GAG
 ser arg val gln gly arg lys arg gly gly asp pro arg arg gln his arg gly gly glu
 241/81
 GGC GGT CGA GTA CAG CCT CGG CAC ACC GCC GGA CGG GGT CAC GGG CCC GCT GGT GCC TGC
 gly ala arg val gln pro arg his thr ala gly arg gly asp gly pro ala gly gly cys
 301/101
 CCC CGC CGA CGA CAG TCC GGG CTG CAG TCC GTC GGA CTA CGA CAG GCT GCC GGT GTC CGG
 pro arg arg arg gln ser gly leu gln ser val gly leu arg gln ala ala gly val arg
 361/121
 TGC GGT GGT GGT GGT AGA TC
 cys gly gly ala gly arg

SEQ ID N° 19A

FIGURE 19A

32/11
 TTG CGC AAC GGG GTG AGC ACC CAC GCG ATG ATG GCG CAA CTA TCG AAA CTG CAG GAC ATC
 leu arg asn gly val ser thr asp ala met met ala gln leu ser lys leu gln asp ile
 62/21
 GCC AAC GGC AAC GAC GGC ACT CGC GCG GTG GGC ACC CCT GGG TAT CAG GGC AGC GTC GAC
 ala asn ala asn asp gly thr arg ala val gly thr pro gly tyr gln ala ser val asp
 122/41
 TAT GTG GTA AAC ACA CTG CGC AAC AGC GGT TTT GAT GTG CAA ACC CCG GAG TTC TCC GCT
 tyr val val asn thr leu arg asn ser gly phe asp val gln thr pro glu phe ser ala
 182/61
 CGC GTG TTC AAC GCC GAA AAA GGG GTG GTG ACC CTC GGC GGC AAC ACC GTG GAG GCG AGG
 arg val phe lys ala glu lys gly val val thr leu gly gly asn thr val glu ala arg
 242/81
 GCG CTC GAG TAC AGC CTC GGC ACA CCG CCG GAC GCG GTG ACG GGC CCG CTG GTG GCT GCC
 ala leu glu tyr ser leu gly thr pro pro asp gly val thr gly pro leu val ala ala
 302/101
 CCC GCC GAC GAC AGT CGC GGC TGC AGT CCG TCG GAC TAC GAC AGG CTG CCG GTG TCC GGT
 pro ala asp asp ser pro gly cys ser pro ser asp tyr asp arg leu pro val ser gly
 362/121
 GCG GTG GTG CTG GTA GAT C
 ala val val leu val asp

SEQ ID N° 19B

FIGURE 19B

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33/11
TGC GCA ACG GGG TGA GCA CCG ACG CGA TGA TGC CCG AAC TAT CGA AAC TGC AGG ACA TGC
cys ala thr gly GPA ala pro thr arg GFA trp arg asn tyr arg asn cys arg thr ser
63/21
CCA ACG CCA ACG ACG GCA CTC CCG CCG TGG GCA CCC CTG GCT ATC AGG CCA CCG TCG ACT
pro thr pro thr thr ala leu ala arg trp ala pro leu ala ile arg pro ala ser thr
123/41
ATG TGG TAA ACA CAC TGC GCA ACA GCG GTT TTG ATG TGC AAA CCC CCG AGT TCT CCG CTC
met trp OCH thr his cys ala thr ala val leu met cys lys pro arg ser ser pro leu
183/61
GCG TGT TCA AGG CCG AAA AAG GCG TGG TGA CCC TCG CCG GCA ACA CCG TGG AGG CCA GCG
ala cys ser arg pro lys lys gly trp GFA pro ser ala ala thr pro trp arg arg gly
243/81
CGC TCG AGT ACA GGC TCG GCA CAC CCG CCG ACG GGG TGA CCG GCC CCG TCG TGG CTG CCC
arg ser ser thr ala ser ala his arg arg thr gly GFA arg ala arg trp trp leu pro
303/101
CCG CCG ACG ACA GTC CCG GCT GCA GTC CGT CCG ACT ACG ACA GGC TGC CCG TGT CCG GTC
pro pro thr thr val arg ala ala val arg arg thr thr thr gly cys arg cys pro val
363/121
CGG TCG TCG TGG TAG ATC
arg trp cys trp AMS ile

SEQ ID N° 19C

FIGURE 19C

partie de la séquence nucléotidique de seq19A

1/1
CTA TCG AAA CTG CAG GAC ATC GCC AAC GGC AAC GAC GGC ACT CGC GCG CTG GGC ACC CCG
leu ser lys leu gln asp ile ala asn ala asn asp gly thr arg ala val gly thr pro
61/21
GGC TAT CAG GCC AGC GTC GAC TAT GTG GTA AAC ACA CTG CCG AAC AGC GGT TTT GAT GTG
gly tyr gln ala ser val asp tyr val val asn thr leu arg asn ser gly phe asp val
121/41
CAA ACC CCG GAG TTC TCC GCT CCG GTG TTC AAG GCC GAA AAA GCG GTC GTG ACC CTC GCG
gln thr pro glu phe ser ala arg val phe lys ala glu lys gly val val thr leu gly
181/61
GGC AAC ACC GTG GAG GCG AGG CCG CTC GAG TAC ACC CTC GGC ACA CCG CCG GAC GCG GTG
gly asn thr val glu ala arg ala leu glu tyr ser leu gly thr pro pro asp gly val
241/81
ACG GGC CCG CTG GTG GGT GCC CCC GCC GAC GAC AGT CCG GGC TGC AGT CCG TCG GAC TAC
thr gly pro leu val ala ala pro ala asp asp ser pro gly cys ser pro ser asp tyr
301/101
GAC AGG CTG CCG GTG TCC GGT CCG GTG GTG CTG CTA GAT C
asp arg leu pro val ser gly ala val val leu val asp
361/121

SEQ ID N° 19A'

FIGURE 19A

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1/1 31/11
TAT CGA AAC TSC AGG ACA TCG CCA ACC CCA ACC ACC GCA CTC GCG CCG TGG GCA CCC CTC
tyr arg asn cys arg thr ser pro thr pro thr thr ala leu ala arg trp ala pro leu
61/21 91/31
GCT ATC AGG CCA GCG TCG ACT ATG TGG TAA ACA CAC TGC GCA ACA GCG GTT TTG ATC TGC
ala ile arg pro ala ser thr met trp och thr his cys ala thr ala val leu met cys
121/41 151/51
AAA CCC CCG AGT TCT CCG CTC GCG TGT TCA AGG CCG AAA AAG GCG TGG TGA CCC TCG GCG
lys pro arg ser ser pro leu ala cys ser arg pro lys lys gly trp opa pro ser ala
181/61 211/71
GCA ACA CCG TGG AGG CGA GCG CCG TCG AGT ACA GCG TCG GCA CAC CCG CCG ACC GCG TGA
ala thr pro trp arg arg gly arg ser ser thr ala ser ala his arg arg thr gly opa
241/81 271/91
CGG GCG CCG TGG TGG CTG CCC CCG CCG ACC ACA CTC CCG GCT GCA GTC CGT CCG ACT ACC
arg ala arg trp trp leu pro pro pro thr thr val arg ala ala val arg arg thr thr
301/101 331/111
ACA GGC TGC CCG TGT CCG GTG CCG TGG TGC TGG TAG ATC
thr gly cys arg cys pro val arg trp cys trp amb ile

SEQ ID N° 19B'

FIGURE 19B'

1/1 31/11
ATC GAA ACT GCA GGA CAT CCG CAA CCG CAA CCA CCG CAC TCG CCG GGT GCG CAC CCC TGG
ile glu thr ala gly his arg gln arg gln arg arg his ser arg gly gly his pro trp
61/21 91/31
CTA TCA GGC CAG CGT CGA CTA TGT GGT AAA CAC ACT GCG CAA CAG CCG TTT TGA TGT GCA
leu ser gly gln arg arg leu cys gly lys his thr ala gln gln arg phe opa cys ala
121/41 151/51
AAC CCC GGA GTT CTC CCG TCG CGT GTT CAA GCG CGA AAA AGG GGT GGT GAC CCT CCG CCG
asn pro gly val leu arg ser arg val gln gly arg lys arg gly gly asp pro arg arg
181/61 211/71
CAA CAC CGT GGA GCG GAG GGC GCT CGA GTA CAG CCT CCG CAC ACC GTC GGA CCG GGT CAC
gln his arg gly gly glu gly ala arg val gln pro arg his thr ala gly arg gly asp
241/81 271/91
GGG CCC GCT GGT GGC TGC CCC CSC CGA CGA CAG TCC GGG CTG CAG TCC CTC GGA CTA CGA
gly pro ala gly gly cys pro arg arg arg gln ser gly leu gln ser val gly leu arg
301/101 331/111
CAG GCT CCC GGT GTC CCG TGC GGT GGT GCT GGT ASA TC
gln ala ala gly val arg cys gly gly ala gly arg

SEQ ID N° 19C'

FIGURE 19C'

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sequence Rv0418 prédite par Cole et al. (Nature 393:537-544) et contenant seq19A'

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1/1                               31/31
atg gtg aac aaa tcc agg atg atg cag gag gtg ctg gcc gtg gct gag gtc gtc gca ttc
Met val asn lys ser arg met met pro ala val leu ala val ala val val ala phe
61/21                               91/31
ctg acg acg gag tgt atc cag tag tcc acg cag tgg cgg ccc gtt gtt aac gcc ccc gct
leu thr thr gly cys ile arg trp ser thr gln ser arg pro val val aso gly pro ala
121/41                               151/51
gac gca gag ttc gac gtc gcg ctg cgc aac cgg gtg agc acc gac gcg atg atg gcg cag
ala ala glu phe ala val ala leu arg asn arg val ser thr asp ala met met ala his
181/61                               211/71
cta tcc aaa ctg cag gac atc gcc aac gcc aac gac gcc acc cgc gcg gtg gcc acc cct
leu ser lys leu gln asp ile ala asn ala asn asp gly thr arg ala val gly thr pro
241/81                               271/91
ggc tat cag gcc agc gtc gac tat gtg gta aac aca ctg cgc aac agc ggt ttt gac gtg
gly tyr gln ala ser val asp tyr val val asn thr leu arg asn ser gly phe asp val
301/101                               331/111
caa acc cag gag ttc tcc gct cgc gtg ttc aag gcc gaa aaa ggg gtg gtg acc ctg gcc
gln thr pro glu phe ser ala arg val phe lys ala glu lys gly val val thr leu gly
361/121                               391/131
ggc aac acc ctg gag gcg agc gcg ctg gag tac agc ctg gcc aca cag ccg gac gcc gtg
gly asn thr val glu ala arg ala leu glu tyr ser leu gly thr pro pro asp gly val
421/141                               451/151
acg gcc ccg ctg gtg gct gcc ccc gcc gac gac agt ccg gcc tgc agt ccg tcc gac tac
thr gly pro leu val ala ala pro ala asp asp ser pro gly cys ser pro ser asp tyr
481/161                               511/171
gac agc ctg ccg gtg tcc ggt gcg gtg gtg ctg gta gat cgc gcc gtc tct cct att gcc
asp arg leu pro val ser gly ala val val leu val asp arg gly val cys pro phe ala
541/181                               571/191
cag aag gaa gac gca gcc gcg cag cgc ggt gcg gtg gcc ctg atc att gct gac aac atc
gln lys glu asp ala ala ala gln arg gly ala val ala leu ile ile ala asp asn ile
601/201                               631/211
gac gag cag gcc atg gcc gcc acc ctg ggg gct aac acc gac gtc aag atc ccg gtg gtg
asp glu gln ala met gly gly thr leu gly ala asn thr asp val lys ile pro val val
661/221                               691/231
agt gtc acc aag tcc gtc gga ttc cag cta cgc gga cag tct ggg cca acc acc gtc aag
ser val thr lys ser val gly phe gln leu arg gly gln ser gly pro thr thr val lys
721/241                               751/251
ctc acg gcg agc acc caa agt ttc aag gcc cgc aac gtc atc gcg ccg acg aag acg gcc
leu thr ala ser thr gln ser phe lys ala arg asn val ile ala gln thr lys thr gly
781/261                               811/271
tcg tcg gcc aac gtg gtg atg gca ggt gcg cat ttc gac agc gtc ccg gaa gga ccc gcc
ser ser ala asn val val met ala gly ala his leu asp ser val pro glu gly pro gly
841/281                               871/291
atc aac gat aac gac tcg gga gtg gct gcg gtt ctg gaa acg gca gtg cag ctg ggg aac
ile asn asp asn gly ser gly val ala ala val leu glu thr ala val gln leu gly asn
901/301                               931/311
tca ccg cat gtg tcc aac gcg gta cgg ttc gcc ttc tcg gcc gcc gag gaa ttc gcc ctg
ser pro his val ser asn ala val arg phe ala phe trp gly ala glu glu phe gly leu
961/321                               991/331
att ggg tca cga aac tac gtc gag tcg ctg gac atc gac gcc ctg aaa gcc atc gcc ctg
ile gly ser arg asn tyr val glu ser leu asp ile asp ala leu lys gly ile ala leu

```

SEQ ID N° 19 D

FIGURE 19D

FEUILLE DE REMPLACEMENT (REGLE 26)

71/185

1021/341
 tat ctg aac ttc gac atg ttg gag tgg cgg aac cgg ggt tac ttc acc tac gac ggt gac
 tyr leu aas phe asp met leu ala ser pro aas pro gly tyr phe thr tyr asp gly asp
 1081/361
 cag tgg ctg cgg cta gac gcc cgc ggt cag cgg gtg gtg ccc gaa ggc tgg gcc ggt atc
 gln ser leu pro leu asp ala arg gly gln pro val val pro glu gly ser ala gly ile
 1141/381
 gag cgc acg atc gtc gcc tac cgg aag atg gcc gcc aag acc gcg cag gac acc tgg ttc
 glu arg thr phe val ala tyr leu lys met ala gly lys thr ala gln asp thr ser phe
 1201/401
 gac ggt cgg tcc gac tac gac gcc ttc acg ctg cgg ggt atc cct tgg ggt gcc ctg ttc
 asp gly arg ser asp tyr asp gly phe thr leu ala gly ile pro ser gly gly leu phe
 1261/421
 tcc gcc gct gag gtc aag aag tcc gcc gag caa gcc gag ctg tgg gcc gcc acc gcc gac
 ser gly ala glu val lys lys ser ala glu gln ala glu leu trp gly gly thr ala asp
 1321/441
 gag cct ttc gat ccc aac tat cac cag aag aca gac acc ctg gac cat atc gac cgc acc
 glu pro phe asp pro aas tyr his gln lys thr asp thr leu asp his ile asp arg thr
 1381/461
 gcg ctg ggt atc aac gcc gct gac gtc gcg tac gcc gtg ggt ttg tat gcc cag gac ctg
 ala leu gly ile aas gly ala gly val ala tyr ala val gly leu tyr ala gln asp leu
 1441/481
 gcc gcc ccc aac ggg gtt cgg gtc atg gcg gac cgc acc cgc cgc ctg att gcc aas cgg
 gly gly pro aas gly val pro val met ala asp arg thr arg his leu ile ala lys pro
 1501/501
 tga
 opa

SEQ ID N° 190 (suite)

FIGURE 190 (suite)

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ORF d'après Cole et al. (Nature 393:537-544) et contenant Rv0418

1/1 31/11
tag gcc att cca cgc tct gtt cgt ttg att ggt cgg tgg gat gcg aaa gct gcg cgg cga
AMB ala ile gln arg ser val arg leu ile gly arg trp asp ala lys ala ala arg arg
61/21 91/31
cag gcg cgg tct aat ctg ggc gcg atg gtg aac aaa tcc agg atg atg ccg gcg gtg ctg
gln ala arg ser asn leu gly ala met val asn lys ser arg met met pro ala val leu
121/41 151/51
gcc gtg gct gtg gtc gtc gca ttc ctg acg acg ggc tgt atc cgg tgg tcc acg cag tgg
ala val ala val val val ala phe leu thr thr gly cys ile arg trp ser thr gln ser
161/61 211/71
cgg ccc gtt gtt aac ggc ccc gat gcc gca gag ttc gcc gtc gcg ttg cga aac cgg gtg
arg pro val val asn gly pro ala ala ala gln phe ala val ala leu arg asn arg val
241/81 271/91
agc acc gac gcg atg atg gcg cac cta tgg aaa ctg cag gac atc gcc aac gcc aac gac
ser thr asp ala met met ala his leu ser lys leu gln asp ile ala asn ala asn asp
301/101 331/111
ggc act cgc gcg gtg ggc acc cct gcc tat cag gcc agc gtc gac tat gtg gta aac aca
gly thr arg ala val gly thr pro gly tyr gln ala ser val asp tyr val val asn thr
361/121 391/131
ctg cgc aac agc ggt tct gat gtg caa acc ccg gag ttc tcc gct cgc gtg ttc aag gcc
leu arg asn ser gly phe asp val gln thr pro gln phe ser ala arg val phe lys ala
421/141 451/151
gaa aaa ggg ctg gtg acc ctc gcc gcc aac acc gtg gag gcg agg gcg ctg gag tac agc
glu lys gly val val thr leu gly gly asn thr val gln ala arg ala leu glu tyr ser
481/161 511/171
ctc gcc aca ccg ccg gac ggg gtg acg gcc ccg ctg gtg gct gcc ccc gcc gac gac agt
leu gly thr pro pro asp gly val thr gly pro leu val ala ala pro ala asp asp ser
541/181 571/191
ccg gcc tgc agt ccg tgg gac tac gac agc ctg ccg gtg tcc ggt gcg gtg gtg ctg gta
pro gly cys ser pro ser asp tyr asp arg leu pro val ser gly ala val val leu val
601/201 631/211
gat cgc ggc gtc tgt cct tct gcc cag aag gaa gac gca gcc gcg cag cgc ggt gcg gtg
asp arg gly val cys pro phe ala gln lys gln asp ala ala ala gln arg gly ala val
661/221 691/231
gcg ctg acc att gct gac aac atc gac gag cag gcg atg gcc gcc acc ctg ggg gct aat
ala leu ile ile ala asp asn ile asp gln gln ala met gly gly thr leu gly ala asn
721/241 751/251
acc gac gtc aag atc ccg gtg gtg agt gtc acc aag tgg gtc gga ttc cag cta cgc gga
thr asp val lys ile pro val val ser val thr lys ser val gly phe gln leu arg gly
781/261 811/271
cag tct ggg cca acc acc gtc aag ctc acg gcg agc acc cca agt ttc aag gcc cgc aac
gln ser gly pro thr thr val lys leu thr ala ser thr gln ser phe lys ala arg asn
841/281 871/291
gtc atc gcg cag acg aag acg ggg tgg tgg gcc aac gtg gtg atg gca ggt gcg cac ttg
val ile ala gln thr lys thr gly ser ser ala asn val val met ala gly ala his leu
901/301 931/311
gac agc gtt ccg gaa gga ccc gcc atc aac gac aac agc tgg gga gtg gct gcg gtc ctg
asp ser val pro glu gly pro gly ile asn asp asn gly ser gly val ala ala val leu
961/321 991/331
gaa acg gca gtg cag ctg ggg aac tca ccg cac gtg tcc aac gcg gta cgg ttc gcc ttc
glu thr ala val gln leu gly asn ser pro his val ser asn ala val arg phe ala phe

SEQ ID N° 19 F

FIGURE 19F
FEUILLE DE REMPLACEMENT (REGLE 26)

73/185

1021/341 1051/351
 tgg ggc gcc gag gaa ttc ggc ctg att ggg tca cga aac tac gtc gag tgc ctg gac aac
 trp gly ala glu glu phe gly leu ile gly ser arg asn tyr val glu ser leu asp ile
 1081/361 1111/371
 gac ggc ctg aaa ggc atc ggc ctg tat ctg aac ttc gac atg ttg ggc tgc ccg aac ccg
 asp ala leu lys gly ile ala leu tyr leu asn phe asp met leu ala ser pro asn pro
 1141/381 1171/391
 ggt tac ttc acc tac gac ggt gac cag tgc ctg ccg cta gac gcc cgc ggt cag ccg gtc
 gly tyr phe thr tyr asp gly asp gln ser leu pro leu asp ala arg gly gln pro val
 1201/401 1231/411
 gtg ccc gaa ggc tgc gcc ggt atc gag cgc acg ttc gtc gcc tat ctg aag atg gcc ggc
 val pro glu gly ser ala gly ile glu arg thr phe val ala tyr leu lys met ala gly
 1261/421 1291/431
 aag acc ggc cag gac acc tgc ttc gac ggt cgg tcc gac tac gac gcc ttc acg ctg ggc
 lys thr ala glu asp thr ser phe asp gly arg ser asp tyr asp gly phe thr leu ala
 1321/441 1351/451
 ggt atc cct tgc ggt ggc ctg ttc tcc ggc ggt gag gtc aag aag tcc gcc gag caa gcc
 gly ile pro ser gly gly leu phe ser gly ala glu val lys lys ser ala glu gln ala
 1381/461 1411/471
 gag ctg tgg ggc ggc acc gcc gac gag cct ttc gat ccc aac tat ccc cag aag aca gac
 glu leu trp gly gly thr ala asp glu pro phe asp pro asn tyr his gln lys thr asp
 1441/481 1471/491
 acc ctg gac cat acc gac cgc acc ggc ctg ggt atc aac gcc ggt ggc gtc gcc tac gcc
 thr leu asp his ile asp arg thr ala leu gly ile asn gly ala gly val ala tyr ala
 1501/501 1531/511
 gtg ggt ttg tat gcc cag gac ctg gcc gcc ccc aac ggg gtt ccg gtc atg gcc gac cgc
 val gly leu tyr ala gln asp leu gly gly pro asn gly val pro val met ala asp arg
 1561/521
 acc cgc cac ctg att gcc aaa ccg tga
 thr arg his leu ile ala lys pro OFA

SEQ ID N° 19F (suite)

FIGURE 19F (suite)

31/11
 CGA GAC AGT GGT GCG GGA CAC TTG AGT TCG GCT GCT AAC GAC GCC AGA GTC GCC CGC TTC
 arg asp ser gly ala gly his leu ser ser ala ala asn asp ala arg val ala arg phe
 61/21 91/31
 CSC GGT GTG GGA CTC ACG TTC GGT GAG GGT ACA GCG GAC CTT CGA GCA CGC AAT ATC GTG
 arg gly val gly leu thr phe gly glu gly thr ala asp leu arg ala arg asn ile val
 121/41 151/51
 GGC CGG CTG GCA ACC CTC GGT TTC GAC GTT GGT GAC GAC CCC TCG TTC ATG AAT CGT TCT
 gly arg leu ala thr val gly phe asp val gly asp asp pro ser phe met asn arg ser
 181/61 211/71
 TGA GCT CCC GGT TTT GCT GGA TGC CCA GGC ACC GCG GGT ACT GCT GCG CTT AAG CTT GTC
 OFA ala pro arg phe ala gly cys pro gly thr ala gly thr ala ala leu lys leu val
 241/81 271/91
 GCA CAT GGT GCC GGC AAG GAG GAA CAG TGG GCA ACG AGC TAG CCG CGC TCG CCG CGC TGG
 ala his gly ala gly arg glu glu gln trp ala ser ser AAS pro arg ser pro arg trp
 301/101 331/111
 TCG GTG CGT GCA TGC TCG CAG CCG GAT GCA CCA ACG TCG TCG ACG GGA CGC CCG TCG CTG
 ser val arg ala cys ser gln pro asp ala pro thr trp ser thr gly pro pro trp leu
 361/121
 CCG ACA AAT CCG GAC CAC TGC ATC AGG ATC
 pro thr asn pro asp his cys ile arg ile

SEQ ID N° 20A

FEUILLE DE REMPLACEMENT (REGLE 26)

FIGURE 20A

74/105

32/11
 GAG ACA GTG GTG CCG GAC ACT TGA GTT CCG CTG CTA ACG ACG CCA GAG TCG CCC GCT TCC
 glu thr val val arg asp thr opa val arg leu leu thr thr pro glu ser pro ala ser
 62/21
 GCG GTG TCG GAC TCA CGT TCG GTG AGG GTA CAG CCG ACC TTC GAG CAC GCA ATA TCG TCG
 ala val trp asp ser arg ser val arg val gln arg thr phe glu his ala ile ser trp
 122/41
 GCC GGC TGG CAA CCG TCG GTT TCG ACG TTG GTG ACG ACC CCT CGT TCA TGA ATC GTT CTT
 ala gly trp gln pro ser val ser thr leu val thr thr pro arg ser oha ile val leu
 182/61
 GAG CTC CCC GTT TTG CTG GAT GCC CAG GCA CCG CCG GTA CTG CTG CCG TTA AGC TTG TCG
 glu leu pro val leu leu asp ala gln ala pro pro val leu leu arg leu ser leu ser
 242/81
 CAC ATG GTG CCG GCA GGG AGG AAC AGT GGG CAA GCA GCT AGC CCG GCT CCG CCG GCT GGT
 his met val pro ala gly arg asn ser gly gln ala ala ser arg ala arg arg ala gly
 302/101
 CCG TCG GTG CAT GCT CCG AGC CCG ATG CAC CAA CGT GGT CGA CCG GAC CCG CGT GCC TCG
 arg cys val his ala arg ser arg met his gln arg gly arg arg asp arg arg gly cys
 362/121
 CGA CAA ATC CCG ACC ACT GCA TCA GGA TC
 arg gln ile arg thr thr ala ser gly

SEQ ID N° 208

FIGURE 208

33/11
 AGA CAG TCG TGC GGG ACA CTT GAG TTC GGC TGC TAA CGA CCG CAG AGT CCG CCG CTT CCG
 arg gln trp cys gly thr leu gln phe gly cys ooh arg arg gln ser arg pro leu pro
 63/21
 CCG TGT GGG ACT CAC GTT CCG TGA GGG TAC AGC GGA CCT TCG AGC ACG CAA TAT CGT GCG
 arg cys gly thr his val arg opa gly tyr ser gly pro ser ser thr gln tyr arg gly
 123/41
 CCG GCT GGC AAC CGT CCG TTT CGA CGT TGG TGA CGA CCC CTC GTT CAT GAA TCG TTC TTG
 pro ala gly asn arg arg phe arg arg trp opa arg pro leu val his glu ser phe leu
 183/61
 AGC TCC CCG TTT TSC TGG ATG CCC AGG CAC CGC CCG TAC TGC TGC GCT TAA GCT TGT CCG
 ser ser pro phe cys trp met pro arg his arg arg tyr cys cys ala ooh ala cys arg
 243/81
 ACA TGG TGC CCG CAG GGA GGA ACA GTG GGC AAG CAG CTA CCC GCG CTC GCC GCG CTG GTC
 thr trp cys arg gln gly gly thr val gly lys gln leu ala ala leu ala ala leu val
 303/101
 GGT GCG TCG ATG CTC GCA GCC GGA TCG ACC AAC GTG GTC GAC GGG ACC GCC GTG GCT GCC
 gly ala cys met leu ala ala gly cys thr asn val val asp gly thr ala val ala ala
 363/121
 GAC AAA TCC GGA CCA CTG CAT CAG GAT C
 asp lys ser gly pro leu his gln asp

SEQ ID N° 209

75/185

partie de la séquence nucléotidique de seq20A

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1/1                               31/31
TGT GGG ACT CAC GTT CCG TGA GGG TAC ACC GGA CCT TCG AGC ACG CAA TAT CGT GGG CCG
cys gly thr his val arg GGA gly tyr ser gly pro ser ser thr gln tyr arg gly pro
61/21                               91/31
GCT GGC AAC CGT CCG TTT CGA CGT TGG TGA CGA CCC CTC GTT CAT GAA TCG TTC TTG ACC
ala gly asn arg arg phe arg arg trp GGA arg pro leu val his glu ser phe leu ser
121/41                               151/51
TCC CCG TTT TGC TGG ATG CCC AGG CAC CCG CCG TAC TGC TGC GCT TAA GCT TGT CCG ACA
ser pro phe cys trp met pro arg his arg arg tyr cys cys ala OCH ala cys arg thr
181/61                               211/71
TGG TGC CCG CAG GGA GGA ACA GTG GGC AAG CAG CTA GCC GCG CTC GCC GCG CTG CTC GGT
trp cys arg gln gly gly thr val gly lys gln leu ala ala leu ala ala leu val gly
241/81                               271/91
GCG TGC ATG CTC GCA GCC GCA TGC ACC AAC GTG GTC GAC GCG ACC GCC GCG GCT GCC GAC
ala cys met leu ala ala gly cys thr asp val val asp gly thr ala val ala ala asp
301/101
AAA TCC GGA CCA CTC CAT CAG GAT C
lys ser gly pro leu his gln asp

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SEQ ID N° 20A'

FIGURE 20A'

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1/1                               31/31
GTG GGA CTC ACG TTC GGT GAG GGT ACA GCG GAC GTT CGA GCA CCG AAT ATC GTG GCG CCG
val gly leu thr phe gly glu gly thr ala asp leu arg ala arg asn ile val gly arg
61/21                               91/31
CTG GCA ACC CTC GGT TTC GAC GTT GGT GAC GAC CCC TCG TTC ATG AAT CGT TCT TGA GCT
leu ala thr val gly phe asp val gly asp asp pro ser phe met asn arg ser GGA ala
121/41                               151/51
CCC CGT TTT GCT GGA TGC CCA GCG ACC GCG GGT ACT GCT GCG CTT AAG CTT GTC GCA CAT
pro arg phe ala gly cys pro gly thr ala gly thr ala ala leu lys leu val ala his
181/61                               211/71
GGT GCG GCG ACC GAG GAA CAG TGG GCA AGC AGC TAG CCG CCG TCG CCG CCG TCG TCG GTG
gly ala gly arg glu glu gln trp ala ser ser AMB pro arg ser pro arg trp ser val
241/81                               271/91
CGT GCA TGC TCG CAG CCG GAT GCA CCA ACC TGG TCG ACC GCA CCG CCG TCG CTC CCG ACA
arg ala cys ser gln pro asp ala pro thr trp ser thr gly pro pro trp leu pro thr
301/101
AAT CCG GAC CAC TGC ATC AGG ATC
asn pro asp his cys ile arg ile

```

SEQ ID N° 20B'

FIGURE 20B'

76/185

1/1 31/11
 GTG TGG GAC TCA CGT TCG GTG AGG GTA CAG CCG ACC TTC GAG CAC GCA ATA TCG TGG GCC
 val trp asp ser arg ser val arg val gln arg thr phe glu his ala ile ser trp ala
 61/21 91/31
 GGC TGG CAA CCG TCG GTT TCG ACC TTG GTG ACC ACC CCT CGT TCA TGA ATC GTT CTT GAG
 gly trp gln pro ser val ser thr leu val thr thr pro arg ser cpa ile val leu glu
 121/41 151/51
 CTC CCC GGT TTG CTG GAT CCC CAG GCA CCG CCG GTA CTG CTG CCC TTA AGC TTG TCG CAC
 leu pro val leu leu asp ala gln ala pro pro val leu leu arg leu ser leu ser his
 181/61 211/71
 ATG GTG CCG GCA GGG AGG AAC AAT GGG CAA GCA GGT AGC CCG GGT CCC CGC OCT GGT CCG
 met val pro ala gly arg asn ser gly gln ala ala ser arg ala arg arg ala gly arg
 241/81 271/91
 TGC GTG CAT GGT CCC AGC CCG ATG CAC CAA CGT GGT CGA CCG GAC CCC CGT CCG TGC CGA
 cys val his ala arg ser arg met his gln arg gly arg arg asp arg arg gly cys arg
 301/101
 CAA ATC CCG ACC ACT GCA TCA GGA TC
 gln ile arg thr thr ala ser gly

SEQ ID N° 20C'

FIGURE 20C'

séquence Rv3576 prédite par Cole et al. (Nature 393:637-644) et contenant seq20A'
 1/1 31/11
 atg ggc aag cag cta gcc ggc atc gcc ggc ctg gtc ggt ggc tgc atg ctc gca gcc gga
 met gly lys gln leu ala ala leu ala ala leu val gly ala cys met leu ala ala gly
 61/21 91/31
 tgc acc aac gtg gcc gac ggg acc gcc gtg ggt gcc gac aac tcc gga cca ctg cat cag
 cys thr asn val val asp gly thr ala val ala ala asp lys ser gly pro leu his gln
 121/41 151/51
 gat ccg ata ccg ggt cca ggc ctt gaa ggg ctg ctt ctc gac ttg agc cag atc aat gcc
 asp pro ile pro val ser ala leu glu gly leu leu leu asp leu ser gln ile asn ala
 181/61 211/71
 gcg ctg ggt ggc aca tcc atg aag gtg tgg ttc aac gcc aag gca arg tgg gcc tgg agc
 ala leu gly ala thr ser met lys val trp phe asn ala lys ala met trp asp trp ser
 241/81 271/91
 aag agc gtg gcc gac aag aat tgc ctg gct atc gac ggt cca gca cag gaa aag gtc tat
 lys ser val ala asp lys asn cys leu ala ile asp gly pro ala gln glu lys val tyr
 301/101 331/111
 gcc ggc acc ggg tgg acc gct atg cgc gcc caa cgg ctg gat gac agc atc gat gac tcc
 ala gly thr gly trp thr ala met arg gly gln arg leu asp asp ser ile asp asp ser
 361/121 391/131
 aag aac cgg gac caa tac gcc att caa ggc gtc gtc gcc ttc cgg acc gca cat gat gcc
 lys lys arg asp his tyr ala ile gln ala val val gly phe pro thr ala his asp ala
 421/141 451/151
 gag gag ttc tac agc tcc tgg gtg caa agc tgg agc agc tgc tgg aac cgg cgg att gtc
 glu glu phe tyr ser ser ser val gln ser trp ser ser cys ser asn arg arg phe val
 481/161 511/171
 gaa gtc acc ccc gga cag gac gac gcc gcc tgg acc gtg ggt gac gtt gtc aac gac aac
 glu val thr pro gly gln asp asp ala ala trp thr val ala asp val val asn asp asn
 541/181 571/191
 gcc atg ctc agt agc tgg cag gtc cag gaa ggc gcc gac gga tgg acc tgc cag cgt gcc
 gly met leu ser ser ser gln val gln glu gly gly asp gly trp thr cys gln arg ala
 601/201 631/211
 cag aat gag cgc aac aac gtc aat aac gaa att gtc acg tgc gcc tat agc caa cgg gat
 leu thr ala arg asn asn val thr ile asp ile val thr cys ala tyr ser gln pro asp
 661/221 691/231
 ccg gtg gcc att gcc atc gct aac caa atc ggc gcc aag gtt gct aag cag tag
 leu val ala ile gly ile ala asn gln ile ala ala lys val ala lys gln AMB

SEQ ID N° 20D

FIGURE 20D

FEUILLE DE REMPLACEMENT (REGLE 26)